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Vaccination against Tuberculosis with Freeze-Dried BCG Vaccine

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FROM different sides it has been stressed that an efficacious procedure of freeze-drying of BCG would enormously facilitate the transport of this vaccine to such parts of the world as are still deprived of laboratory accommodations for the production of fresh BCG vaccine, especially tropical countries and colonies.

The production of freeze-dried BCG vaccine has been taken up by the Pasteur Institute where we started to study the problem in July, 1947. The results of our endeavors, both experimental and practical, have been published several times,[1] and the present paper is not intended to give a complete description of details already published elsewhere. If we venture to ask the reader's attention to the problem of freeze-dried BCG vaccine here, this is done because several scientists have published their experimental work on the same subject and generally have obtained rather disappointing results. Thus, the general opinion today is that freeze-drying of BCG is a problem, interesting in itself, but at present difficult to solve because most of the BCG germs are killed during freeze-drying.

To support the foregoing statement, it may be interesting to refer briefly to the different publications on this subject by writers from different countries and then to summarize the results obtained with the freeze-drying technique of BCG at the Pasteur Institute.

At the First International BCG Congress, Paris, 1948, Professor Kaiser of Vienna described his method of freeze-drying BCG vaccine, using a BCG suspension in 10 per cent solution of sterile gelatin (Merck). Unhappily he failed to indicate the survival rate of the bacilli after freeze-drying and the percentage of tuberculin allergy obtained among individuals vaccinated with his dried BCG vaccine.[2]

In Great Britain, Ungar and Muggleton have freeze-dried BCG suspensions in 5 per cent gelatin (1 mg. per ml). Details published by the writers in 1949 show that about 95 per cent of the germs are killed during freeze-drying.[3]

S. R. Rosenthal of Chicago prepares freeze-dried BCG, using a suspension of BCG (30 mg. per ml.) in 15 per cent lactose. Rosenthal claims to obtain excellent results with his freeze-dried BCG vaccine on vaccinated individuals.[4] We tried Rosenthal's method at the Pasteur Institute but obtained very bad results, most bacilli being killed during freeze-drying in different lactose solutions.

Dr. North of Melbourne also prepares freeze-dried BCG vaccine using Rosenthal's technique. Trials with North's dry BCG vaccine on 2,000 natives in New Guinea have produced less than 50 per cent allergy in the vaccinated, notwithstanding the fact that they had been vaccinated with double doses.[5]

In Japan, two scientists, Kato and Kobyashi, prepared freeze-dried BCG suspended in peptone solutions, 1 and 2 per cent, respectively. Unhappily no information has been published by these writers on the percentage of bacilli surviving the treatment.[6]

Boe and Greaves have freeze-dried BCG suspensions in Hiss's serum and stated that only about 7 per cent of the bacilli survived after freeze-drying.[7]

In the United States Konrad Birkhaug has freeze-dried BCG using 50 per cent glucose solution as the suspensional liquid (20 mg. per ml.). He also stated that only 5 per cent of the bacilli survive after freeze-drying.[8]

At first sight, Birkhaug's results may seem astonishing, because with reference to the glucose suspensional liquid, his technique resembles the one we are using in Paris. But in reading his article one notes that his freeze-drying apparatus only yields a vacuum of 0.1 mm. mercury and that the ampules of freeze-dried BCG vaccine obtained using this apparatus consist of a syrupy mass covered with a thin dry crystalline film. Thus, the vaccine prepared by Birkhaug is not really dry.

As already indicated, the detailed description of the freeze-drying technique followed at the Pasteur Institute has already been published elsewhere, and only the following superficial details will be given here *pro memoria*.[9]

At the BCG Department of the Pasteur Institute we are preparing freeze-dried BCG in two dosages. We first started preparing concentrated dry BCG dosed for vaccination by scarification. Each ampule contains 150 mg. BCG in 0.5 ml., 50 per cent glucose. Today we are preparing dry BCG dosed for intracutaneous vaccination, each ampule containing 6 mg. BCG in 0.12 ml., 50 per cent glucose. The ampules are quickly frozen with liquid nitrogen and then placed in alveoles scattered all over the surface of a hollow metal cylinder refrigerated at —50° C. by a stream of cold paraffin oil. Once the cylinder is charged with the ampules, it is lowered into an autoclave in which a spiral refrigerated at —70° C., acts as a condenser, and a system of pumps then allows us to create a vacuum of about 1/10,000 mm. mercury. After 24 hours' freezing and vacuum, the temperature of the cylinder is allowed to rise to room temperature by a system of electric resistances. The vacuum is then interrupted and the cylinder with its charge of ampules is taken out of the first autoclave and lowered down into a second one, where the same vacuum is created, but now at room temperature and in the presence of phosphoric acid anhydride. Twenty-four hours later, the vacuum is interrupted by air dried by passage through sulfuric acid; the cylinder is lifted out, and the ampules are collected and rapidly sealed.

It may be seen by this brief description that the nature of the suspensional liquid (50 per cent glucose), which is the same as the one used by Birkhaug, necessitates an extremely high and prolonged vacuum to allow us to obtain a really dry vaccine. The dry BCG vaccine presents itself in the form of a spongy cream-colored mass which it is very easy to resuspend so as to obtain homogeneous suspensions of living BCG bacilli.

As indicated, we started the production of dry BCG in July, 1947. From that date until today, it has been a routine in our BCG Department to inoculate on the surface of Löwenstein-Jensen egg medium dilutions of our glucose BCG vaccine immediately be-

fore and after freeze-drying, and these inoculations have allowed us to state that the number of colonies growing on the egg medium inoculated with the vaccine before and after freeze-drying is always nearly identical. As we have been performing such inoculations for nearly four years now, twice a week, in our opinion the very large number of these inoculations gives us a right to state that, when using the technique described, the mortality of the germs during the freeze-drying procedure is zero or nearly so.

Before delivering the first doses of freeze-dried BCG vaccine for use on human beings, a number of experiments were performed in our department *in vitro* and *in vivo* on guinea pigs. As these experiments have been published *in extenso* elsewhere, it may be sufficient to summarize them as follows:

Vials of dry BCG stocked at room temperature (20° C.) show a diminution of the number of living bacilli of about 20 per cent at the end of the first month. The decrease of living germs continues slowly during the following months, and after 5 months of stocking at room temperature, about 40 per cent of the bacilli contained in the dry BCG vaccine are dead. Stocked in an ice chest (+5° C.), the dry BCG vials show no mortality at all during the first 3 or 4 months and after 6 months only 10 per cent of the bacilli are dead.

Inoculation of 0.01 mg. of dry BCG resuspended in distilled water into guinea pigs is followed by tuberculin allergy in nearly 100 per cent of the animals. It has been noted that the appearance of allergy in guinea pigs inoculated with dry BCG lags about 8 or 10 days behind the one provoked by inoculation of fresh BCG. The regularity and strength of allergy provoked by ordinary fresh BCG and recently prepared dry BCG are equal. Dry BCG stocked at room temperature for more than 2 months provokes in guinea pigs less pronounced allergy than recently prepared dry BCG. As to the tuberculosis resistance in guinea pigs, our experiments show that 6.5 months after vaccination with dry BCG—whether recently prepared or stocked vaccine—the vaccinated animals possess a tuberculosis resistance quite comparable to the one due to fresh BCG in guinea pigs vaccinated simultaneously, as compared with nonvaccinated control animals.

Having found by the *in vitro* and *in vivo* experiments mentioned that the freeze-dried glucose BCG vaccine behaves exactly like fresh BCG vaccine, the first batches of dry BCG were delivered to Manila, Philippines (January, 1948). At about the same time, two vaccination campaigns on human beings were undertaken in France with our dry BCG vaccine. This has enabled us to complete our laboratory observations from an experiment obtained in the field by objective vaccinators under quite different conditions.

The results of these three first vaccination campaigns with dry BCG from Paris have now been published and may be summarized briefly as follows: Professor Gernez-Rieux, Director of the Pasteur Institute at Lille, and his collaborators vaccinated 274 children aged 6 to 14 years with fresh BCG and 251 children of the same age group with freeze-dried BCG by the scarification method. They found 100 per cent tuberculin conversions in those vaccinated with fresh vaccine and 98.7 per cent in the children vaccinated with freeze-dried BCG (0.1 mg. O.T., intracutaneously).[10]

The second French experiment was undertaken by Dr. Poulain, Medical Inspector of the coal mines at Saint-Avold. He vaccinated 364 young miners and apprentices aged 14 to 19, all negative to tuberculin, with freeze-dried BCG by scarification and obtained 98 per cent allergy to tuberculin (Mantoux, 1 mg. O.T., intracutaneously).[11]

A report on the Philippines experiment has been published by Dr. Bona de Santos, Manila.[12] Fifteen thousand, eight hundred and twenty-four tuberculin-negative individuals were vaccinated with freeze-dried BCG from Paris, using Rosenthal's multiple punctures method. The ages of the vaccinated varied from 0 to 37 years. Two thousand, five hundred and seventy-four vaccinated persons were tuberculin tested 8 weeks after vaccination (0.005 mg. P.P.D., intracutaneously). In the age group 0 to 6 months, 78.6 per cent allergy was obtained, and the percentages increased gradually with the age of the vaccinated, attaining 100 per cent at the age of 8 years and older. The babies had probably been tested too early and the percentage of allergy would have been superior if they had been tuberculin tested later.

After the Philippines, the first tropical country to use freeze-dried BCG from Paris was the Belgian Congo. The medical authorities there are using the concentrated form of BCG calling for scarification but dilute the contents of each ampule in 300 ml. saline solution: 0.1 ml. of the suspension thus obtained is injected intradermally (0.05 mg. per dose).

In a personal communication, Dr. Defrenne from Haut Katanga (Belgian Congo) reports on the preliminary results obtained during a BCG campaign with freeze-dried vaccine from Paris on 54,000 Negroes working in the mines and living in camps. Dr. Defrenne reports on two groups of Negro school children who were tuberculin tested after BCG vaccination (1 mg. O.T., intracutaneously): In the first group of 400 school children, 91 per cent had become allergic to tuberculin, and in the second group of 439 school children, 97 per cent reacted positively to tuberculin after vaccination with dry BCG.

Another Belgian physician from the Congo, Dr. Balsacq, has published the results he obtained during a vaccination campaign with freeze-dried BCG from Paris on 21,000 Negroes, two groups of whom have been submitted to a postvaccinal tuberculin test: In the first group of 1,875 vaccinated individuals, 89 per cent tuberculin allergy has been obtained, and in a second group of 1,150, the percentage of postvaccinal allergy was also 89 (1 mg. O.T., intracutaneously).[13]

As pointed out, the Belgian physicians in the Congo are using a suspension dose of 0.5 mg. per ml. obtained by diluting the contents of a concentrated freeze-dried BCG vial in 300 ml. saline solution. Results would certainly have been better if the contents of each ampule had been suspended in 150 ml. instead of 300 ml. of saline, which would have yielded 1 mg./ml. suspension (0.1 mg. per dose), the standard dose for intradermal BCG vaccination.

In a short report from the Belgian Congo, Dr. Mottoule states that during a vast BCG campaign effectuated with dry BCG from Paris (same technique as the above mentioned), excellent results have been obtained, the percentage of postvaccinal tuberculin allergy amounting to 96 (1 mg. O.T., intracutaneously).[14]

The freeze-dried BCG vaccine is sent out from Paris in packages by air mail without special precautions as to refrigeration. We only recommend that the ampules of dry BCG be stored in a simple ice chest (+5° C.) as soon as they arrive. The following report shows that, even if this precaution is omitted for some reason, the viability of the dry BCG does not really suffer. On August 4, 1949, a package containing 20 vials of dry BCG vaccine was dispatched by air to Istanbul, where it was kept by the Turkish customs until August 30 in a shed exposed to full summer heat. It was then delivered to Dr. Nurredin Onur, who had ordered it. Dr. Onur inoculated the contents of one of these

ampules on culture media and the bacilli proved to be perfectly viable. Seventy-one children aged 7 to 14 years were then vaccinated with this dry vaccine by scarification during the month of September. They were tuberculin tested on December 9: 66 children showed positive Pirquet reactions and 1 a positive Mantoux (10 units); and 4 remained negative to Mantoux (10 units). So, even with this dry BCG vaccine, which may be considered as having suffered from long exposure to heat, 95.5 per cent allergy has been obtained in a group of 71 school children.[15]

In Singapore, Dr. Garlick, Director of the Clinic of the Singapore Antituberculosis Association, in a personal communication dated February 21, 1950, reports on 147 children vaccinated with dry BCG from Paris by the scarification technique. Eighty-five of these were examined after 3 months and all were found to be strongly positive to tuberculin; 62 were examined after 6 months and were also found to be strongly positive. Thus, in a group of 147 children, 100 per cent allergy has been obtained (1 mg. O.T., Mantoux).

A comparative study of BCG vaccination by multiple punctures or scarification with fresh American BCG and dry BCG vaccine from the Pasteur Institute has been described in a report by the U. S. Public Health Service (personal communication from Dr. Lawrence W. Shaw). From this report the following figures may be mentioned: At the Rosewood State Training School, Maryland, 74 individuals were vaccinated in the spring of 1948 with fresh American BCG vaccine by multiple punctures; 78.4 per cent tuberculin conversions were obtained (0.0002 and 0.002 mg. P.P.D.). Seventy-four vaccinations using fresh American BCG by scarification resulted in 68.9 per cent tuberculin conversions (same doses). Vaccination by multiple punctures of a third group of 74 with French dry BCG vaccine resulted in 75.7 per cent tuberculin conversions. Vaccination with the same dry BCG by scarification of 69 individuals resulted in 62.3 per cent tuberculin conversions (same doses of P.P.D.).*

In a recent paper, Dr. Jose de Carvalho Campos has published the results obtained at Laurenço Marquez among 500 anergic people who were vaccinated with dry BCG from Paris by the scarification technique, 96 per cent of whom became positive to tuberculin after vaccination (0.1 mg. O.T., Mantoux).[16]

In a very important study which will soon be published in *Tubercle*, a Dutch physician, Dr. V. M. Oppers, reports on more than 30,000 natives on the island of Timor, Indonesia, whom he vaccinated with dry BCG from Paris, from May to November, 1950. Oppers used concentrated dry BCG, diluting the contents of each vial with 150 ml. saline solution. He thus obtained a suspension of BCG used in doses of 0.1 mg./ml. injected intradermally. A careful follow-up study of 2,000 natives negative to tuberculin has shown tuberculin conversion in 93.8 per cent (Pirquet), and in 96.35 per cent if tested by Mantoux (1 mg. O.T.).

In a recent official report from Brazzaville (French Equatorial Africa), Dr. Trinquier and Mrs. Pasques report that of 292 Negro school children vaccinated intradermally with dry BCG (concentrated vaccine after appropriate dilution, dose 0.1 mg.), 95.5 to 98.5 per cent allergy has been obtained (Pirquet).

As has been mentioned in the foregoing, the BCG Department of the Pasteur Institute also prepares a diluted form of dry BCG, each vial containing 6 mg. of BCG in 50 per cent glucose (0.12 ml.), and each ampule of this

* It will be noted that in this study the percentages of postvaccinal allergy have been rather low in individuals vaccinated with fresh vaccine as well as in those vaccinated with dry BCG, so that unknown factors have been interfering with the results which have nothing to do with freeze-drying.

dosage is delivered accompanied by an ampule of diluent (6 ml., 34 per 1,000 glucose). Adding the contents of one ampule of diluent to the contents of one ampule of dry BCG vaccine, one obtains a suspension dose of 1 mg. of BCG per ml. in isotonic glucose solution ready for intradermal injection.

This dry BCG vaccine, especially dosed for intracutaneous vaccination, is now delivered after having been tested by the Paris Pilot Station. Dr. Huet, Attaché of this trial station, has vaccinated 204 anergic Paris school children intradermally with this dry vaccine and stated that 202 (99 per cent) became allergic to tuberculin (10 units purified tuberculin "I.P.–48" of the Pasteur Institute).

The reports mentioned, together with the *in vitro* and *in vivo* experimental results, may be considered as sufficient proof of the value of the freeze-dried glucose BCG vaccine prepared at the Paris Pasteur Institute. They appear to establish that this freeze-dried BCG vaccine is equivalent to fresh BCG vaccine and may be used in countries where appropriate laboratory accommodations are still lacking and where transport difficulties and tropical climate conditions prevent the population from being protected against tuberculosis by vaccination with fresh BCG vaccine.

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New Jersey's Health Defense Plan

The *New Jersey Plan for Emergency Medical and Health Preparedness* prepared by the Medical and Health Preparedness Committee, presents the basic state plan and guide for the preparation of local plans for emergency medical and health services. It is built around a defense structure to meet atom blast casualties. In addition to discussing the organization and functions in general, specific attention is given to personnel and training, care of radioactive casualties, emergency medical services, health services, and sanitation services. Daniel Bergsma, M.D., New Jersey State Commissioner of Health, is chairman of the Medical and Health Preparedness Committee. New Jersey State Civil Defense Plan, Office of Civil Defense, Trenton. No information as to distribution.

Paralytic Consequences of Poliomyelitis Infection in Different Parts of the World and in Different Population Groups* †

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IT is a great privilege and honor to deliver this lecture in memory of Dr. Don W. Gudakunst. His important contributions in the broad field of public health are particularly appreciated by the residents of the State of Michigan. Those of us who labored in the field of poliomyelitis before the advent of the National Foundation for Infantile Paralysis and who were privileged to know and work with Don Gudakunst, its first medical director, are especially aware of his contributions in furthering the progress of poliomyelitis research.

I have selected the particular subject for my lecture because the goal of poliomyelitis research is not the elimination of poliomyelitis infection but of the paralysis which is the important consequence of that infection. One of the axioms regarding poliomyelitis, well established by both epidemiologic and laboratory investigations, is that the clinical manifestations of infection with the poliomyelitis viruses are varied: (1) *inapparent,* i.e., silent or asymptomatic, (2) *abortive,* i.e., minor illness without evidence of involvement of the central nervous system, (3) *nonparalytic,* i.e., minor illness with pleocytosis but without paralysis, and (4) *paralytic,* which is both the most important and least common. It is also perhaps axiomatic that poliomyelitis infection occurs wherever human beings are present and persists wherever they live in large enough communities to maintain the chain of infection.

The question to be analyzed in this lecture is whether or not the paralytic consequences of poliomyelitis infection vary in different parts of the world and among different population groups living side by side. Consideration will be given also to a number of factors, which may conceivably influence the incidence of paralysis resulting from poliomyelitis infection, and an attempt will be made to evaluate their role in different population groups.

According to available information, it would appear that poliomyelitis infection is of importance as a cause of paralysis in such countries as the United States, Sweden, and Australia, among others, and that it is negligible among the indigenous populations of the Philippines, China, most of Africa, etc. It is assumed by some, however, that this difference is apparent rather than real. There are those who believe that the total amount of paralytic poliomyelitis

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is probably much the same in different parts of the world and in different population groups, and that it only seems different because:

a. it is not recognized and reported;
b. it occurs almost entirely in early childhood and is not as severe;
c. it occurrs continually at a more or less constant rate rather than in epidemic outbursts.

Paul has made important inquiries along these lines which illustrate the unreliability of official reports from certain countries. In 1943 he analyzed the admissions for "paralysis" in the children's hospitals of Cairo, Egypt, for the period of 1933 to 1942,[1] and in 1950 for the years 1948 and 1949.[2] The number of new admissions per year varied from 22 to 96 during 1933–1939, and from 110 to 201 during 1940–1942; the number was 260 and 211, respectively, for the years 1948 and 1949. From a personal inspection of some of the clinic records and patients, Paul estimated that approximately 80 per cent of the paralytic cases were due to poliomyelitis; and yet the reports to the Egyptian Ministry of Health listed only 2 to 11 cases per year, most of them fatal. However, beyond the fact that poliomyelitis occurs in Cairo much more frequently than would have been suspected without this inquiry, one cannot use these data for quantitative estimates of the incidence of poliomyelitic paralysis in all of Egypt, much less in other countries in which a large portion of the population lives under primitive sanitary conditions. Cairo is a metropolis with a striking admixture of European and African civilizations and ways of life, and it would have been of some interest to know the social and economic groups from which the children with poliomyelitic paralysis were derived. A similar survey in Palestine for the years 1915–1934 indicated that the average attack rate was 20 times higher among the Jews than among the Moslems.[3]

Paul[4] also drew attention to the fact that the mortality statistics for poliomyelitis in Japan between 1923 and 1943, the only statistics available prior to 1948, were not appreciably different from those in the United States, and suggested that the total incidence of paralytic poliomyelitis among the Japanese might also *not* be different from that in the United States. The reporting of poliomyelitis morbidity in Japan began in 1948. Yet during that year a total of only 980 cases of poliomyelitis and polioencephalitis were reported, a morbidity rate of 1.2 per 100,000, of which 775 were fatal. In 1949 the number of reported cases was 3,140 (3.8 per 100,000), of which 1,024 were fatal.[5] During the same period, the morbidity rate for the entire United States was roughly 26 per 100,000. It is clear that either the deaths reported from poliomyelitis in Japan are largely misdiagnosed or that only a very small proportion of the surviving paralytic cases are reported. The experience of the large pediatric clinics in Japan[4] and my own experience in Tokyo and Okayama in 1946, when a special effort was made to report and hospitalize all patients with acute infection of the nervous system, suggest that the former is more probable and that the total amount of paralytic poliomyelitis among the Japanese is relatively small.

Hillman,[6] Hernando and Alomia,[7] and Doull, Hudson, and Hahn[8] have all reported on the rarity of paralytic poliomyelitis among the natives in the Philippines, before World War II, where poliomyelitis was considered to be a disease of white people. During World War II, when the incidence of poliomyelitis among American troops in the Philippines was exceptionally high (88 and 43 per 100,000, respectively, in 1944 and 1945), repeated investigations of the native population in the affected areas revealed either no cases or rare instances of paralytic poliomyelitis among Filipino children.[9]

The uncommon occurrence of paralytic poliomyelitis among the natives of China has been reported by Zia,[10] Yen and Hsu,[11] and Scott,[12] drawing on large population centers with hospitals staffed by western-trained physicians. Personal communications from Dr. A. A. Weech of Cincinnati and Dr. George Van Gorder of Boston, who had spent a number of years at the Peiping Union Medical College as pediatrician and orthopedic surgeon, respectively, are in keeping with these observations. In 1946, while investigating an outbreak of poliomyelitis among American Marines in Tientsin, China, I was also informed by physicians in Tientsin, Peiping, and Shanghai that paralytic poliomyelitis was a most uncommon disease among Chinese children.[13]. Gear [14] has reported that in South Africa the incidence of paralytic poliomyelitis is ten times greater in Europeans than in Africans, and that while the ratio is 1 to 4 in urban areas, it is 1 to 300 in the native territories.

I should like to add several additional examples of the varying incidence of poliomyelitis in different regions and populations, using data which lend themselves more readily to quantitative comparison. The morbidity rates for three of the largest cities of the world, New York, London, and Berlin (Table 1), indicate that all three have had many years of low incidence but have varied in the number of epidemics which they experienced. If one adopts an attack rate of 20 per 100,000 as the arbitrary minimum level for an epidemic in these cities, New York had four epidemics up until 1947 (counting 1916 as the first epidemic year), while both Berlin and London have had only one—their first in 1947. The mean annual attack rate during the interepidemic years between 1928 and 1947 was remarkably similar for New York and Berlin—3.83 and 3.88 per 100,000, respectively—while that for London was only about half, or 1.96 per 100,000. If one includes the epidemic years, the mean annual rates for the periods shown in Table 1 are 8.86, 7.5, and 3.12 per 100,000 for New York, Berlin, and London, respectively. Thus over a period of 20 years, the incidence of poliomyelitis was almost three times greater in New York than in London.

TABLE 1

Annual Attack Rates of Poliomyelitis in New York, London, and Berlin 1928–1947

Year	Cases Reported per 100,000		
	New York	*London*	*Berlin*
1928	8.7	—	1.8
1929	1.1	—	2.0
1930	1.1	—	1.1
1931	*59.1**	—	1.0
1932	2.0	1.9	4.8
1933	11.5	1.8	5.0
1934	1.0	1.5	1.9
1935	*28.5*	2.0	1.8
1936	0.8	2.2	2.4
1937	3.5	3.4	10.8
1938	0.8	2.7	3.4
1939	3.0	2.1	8.3
1940	1.0	0.6	1.4
1941	5.5	2.5	10.9
1942	1.0	1.6	6.2
1943	5.0	1.5	4.0
1944	*24.6*	0.9	2.2
1945	7.1	2.9	2.0
1946	9.2	1.9	2.8
1947	2.8	*20.6*	*76.2*
Mean annual rate for all indicated years	8.86	3.12	7.5
Mean annual rate for inter-epidemic years	3.83	1.96	3.88

* The italicized figures indicate epidemic years.

The data presented in this table were calculated from reports supplied by Dr. S. Frant, New York City Health Department, for New York; Dr. W. H. Bradley of the Ministry of Health for London; and Dr. F. Pfabel of the Landesgesundheitsamt for Berlin.

The data shown graphically in Figure 1 indicate the varying poliomyelitis rates over periods of many years in Sweden as compared with the United States; in New York City as compared with Washington, D. C.; and in three states of relatively high incidence as compared with three states of low incidence. It does not seem likely that gross failures in reporting or recognition are

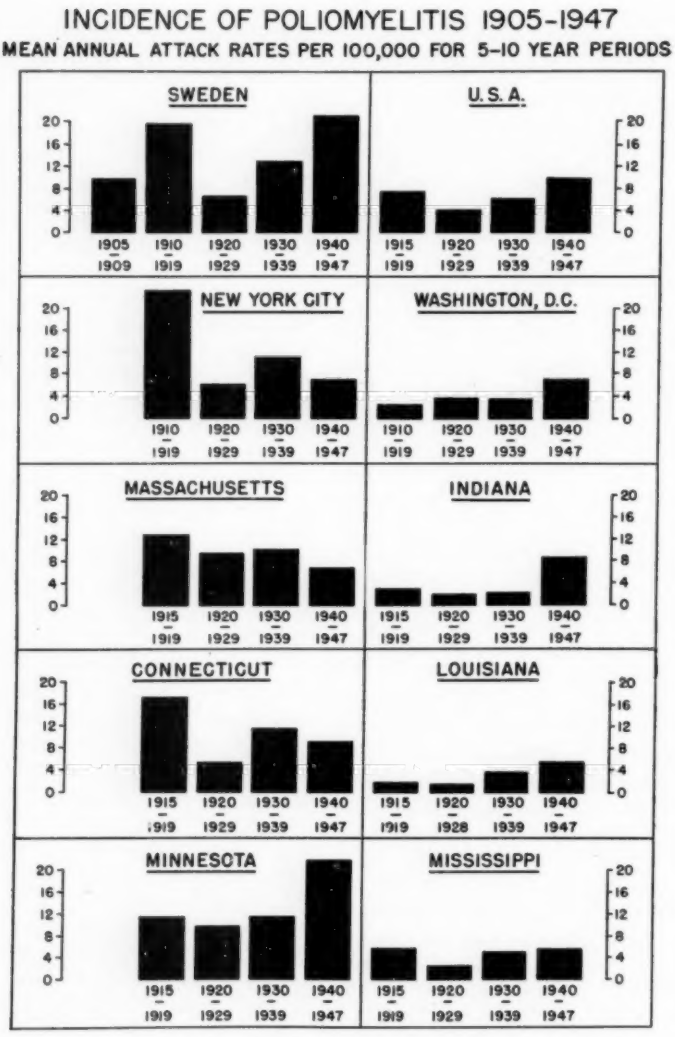

FIGURE 1—Reproduced from Sabin [35]

responsible for the marked differences observed in these particular areas.

The remarkable family survey in 84 cities and towns in 19 states, which was carried out by the U. S. Public Health Service and reported by Collins,[15] clearly showed that the incidence of clinically recognizable poliomyelitis was four times as high among whites as among Negroes in the Northeast; while in the South and intermediate states, the incidence was equally low among the whites and Negroes (Figure 2). Turner, *et al.*,[16] have recently reported that in Baltimore the incidence of poliomyelitis has been consistently higher in whites than in

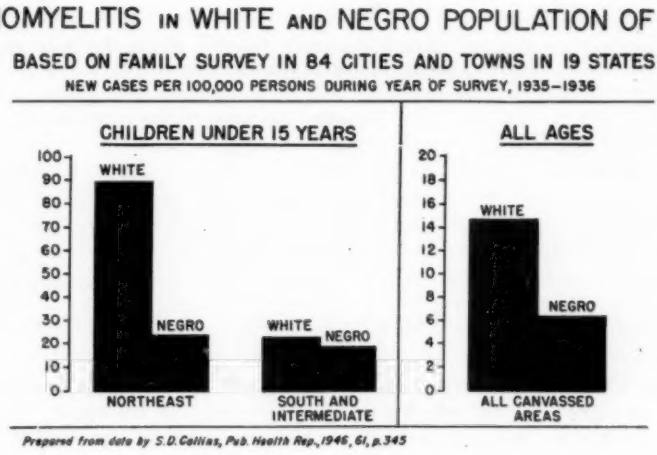
POLIOMYELITIS IN WHITE AND NEGRO POPULATION OF U.S.A.
BASED ON FAMILY SURVEY IN 84 CITIES AND TOWNS IN 19 STATES
NEW CASES PER 100,000 PERSONS DURING YEAR OF SURVEY, 1935–1936
CHILDREN UNDER 15 YEARS
ALL AGES
WHITE
NEGRO
NORTHEAST
SOUTH AND INTERMEDIATE
ALL CANVASSED AREAS
Prepared from data by S.D.Collins, Pub. Health Rep., 1946, 61, p.345

FIGURE 2—Reproduced from Sabin [35]

Negroes, the difference being most marked (threefold to fivefold) during years of increased incidence. Enright's [17] study on the incidence of poliomyelitis over a 10 year period among different population groups in Hawaii was made with special care, because he personally saw most of the cases, checked on the reporting doctors and also on the cases which appeared in the Crippled Children's Service. All this checking turned up only two cases which had not been reported. The results, summarized in Table 2, indicate clearly that

TABLE 2

Poliomyelitis in Different Races in Hawaii, 1938–1947

Population	about 525,000
Total No. of Cases During Decade	291

Race, Total Population	*Per cent of Total Population* 100	*Mean Annual Rate Per 100,000* 5.5 (Range, 0.6–15)
Caucasian	33	10.2
Part Hawaiian	15	9.0
Japanese	33	3.9
Chinese	6	2.7
Filipino	10	1.6
Hawaiian	2	1.3

Based on data reported by Dr. James R. Enright at First International Poliomyelitis Conference.

over a decade the incidence of clinically recognized poliomyelitis was markedly different for different population groups living together in the same neighborhoods and attending the same schools without segregation. Enright pointed out that the incidence of tuberculosis was just the reverse, being highest where poliomyelitis was lowest, and lowest where poliomyelitis was highest.

Thus far, I have called attention to countries and population groups exhibiting tendencies to a negligible or low incidence of paralytic poliomyelitis. The high incidence of poliomyelitis antibody among such groups, as well as the high incidence of paralytic poliomyelitis among American or British adults stationed in these countries, has indicated not only that poliomyelitis infection can be widespread where poliomyelitic paralysis is not, but also that the viruses do not lack virulence in the countries with a low incidence of poliomyelitis in the native population.

I should now like to call attention to population groups, in the Arctic as well as in the tropics, in which poliomyelitis infection was associated with extraordinarily high paralytic attack

TABLE 3

Some Examples of Exceptionally High Poliomyelitis Paralytic Attack Rates in Relatively Isolated, Inbred Populations

Region	*Year*	*Size of Population*	*Attack Rate Per 100,000* *
Chesterfield Inlet—Arctic Eskimos [18]	1949	275	21,000
Nicobar Island, India [19]	1948	10,000	8,000
Sukkertoppen, Greenland [20]	1914	700	5,300 dead many more paralyzed
Sukkertoppen, Greenland [20]	1932	700	2,400
Kangamiut, Greenland [20]	1932	300	4,300
Holsteinborg, Greenland [20]	1932	400	4,000
St. Helena [21]	1945	4,000	1,920
Guam [22]	1899	8,660	808 dead many more paralyzed

* The rate per 100,000 is given to permit easy comparison with rates of 20 to 100 obtaining in usual epidemics in U.S.A., etc.

rates—rates which would be catastrophic if they occurred in countries which now regard themselves as being afflicted with poliomyelitis. The available data on the outbreaks listed in Table 3 leave little doubt regarding their poliomyelitic nature. It seems to me especially important, however, not only that they occurred in unusually isolated populations but also that, because of this very isolation, they were highly inbred. The broad age distribution in these epidemics is evidence that the immunological type of the invading virus was either entirely new to these populations or had not been in their midst for many years. However, the paralytic attack rates are so high that they can hardly be attributed entirely to lack of immunity or to the virulence of the virus. To my knowledge, the highest paralytic attack rate which might perhaps be expected under such conditions is that which occurred in the 1 to 4 year age group in the 1916 epidemic in New York City, namely 1,469 per 100,000.[23] The outbreak among the Eskimos at Chesterfield Inlet was at least 14 times more severe.

The data, which I have assembled here, by no means all that are available, are intended to show that, with due regard for differences in recognition and reporting, the paralytic consequences of poliomyelitis infection are not the same in different parts of the world or even in different population groups living in the same part of the world. I should now like to consider a number of factors which under different circumstances may each play an important role in determining the extent to which poliomyelitis infection shall be paralytic or shall manifest itself as a minor illness or in no illness at all. Among these factors I should like to pay special attention to the role of (a) the genetic constitution of the host, (b) the virulence of different strains of virus belonging to the same immunological type, (c) infection under the influence of maternal immunity, and (d) the size of the infecting dose of virus.

GENETIC CONSTITUTION OF THE HOST

The role of the genetic constitution of the host on the outcome of viral infections in plants is well established and has led to many practical benefits. Webster's [24] classical experiments with specially bred strains of mice and the viruses of St. Louis encephalitis and louping ill have clearly demonstrated the genetic basis of susceptibility and resistance to certain viruses affecting the nervous system. His studies, furthermore, established that something in the nervous tissue itself regulated the level of viral multiplication, and that in the genetically susceptible mice the virus multiplied to a level that was 1,000 to 10,000 times higher than in the resistant

mice. Webster's studies on the mechanism of inheritance of the resistance factor were partly complicated by the fact that a varying proportion of the resistant mice developed encephalitis and died.

As a result of a fortunate accidental discovery of a strain of mice which is 100 per cent resistant to the intracerebral injection of the 17-D mutant strain of yellow fever virus, I have recently been able to confirm Webster's observations that a multiplication-regulating factor constitutes at least one important genetic basis of susceptibility and resistance; and to work out the mechanism of inheritance of this factor. The experimental data, which I obtained in various types of cross-breeding experiments, were in complete accord with the theoretical data for the hypothesis that inheritance of the viral multiplication-regulating factor was dependent on a single gene—susceptibility being inherited as a recessive characteristic and resistance as a dominant.

It was furthermore established that this multiplication-regulating factor which affected the multiplication of the 17-D strain of yellow fever virus also influenced the multiplication of the French neurotropic yellow fever virus, the mouse-adapted Hawaii dengue virus, and the viruses of Japanese B and St. Louis encephalitis and of West Nile fever, but was completely without effect on viruses of Western equine encephalitis, rabies, herpes, Rift Valley fever, lymphocytic choriomeningitis, Theiler's mouse encephalomyelitis (TO strain) and the Lansing and Y-SK strains of poliomyelitis virus. It was also found in studies with the French neurotropic yellow fever and the Japanese B encephalitis viruses that some of the resistant mice developed paralysis and encephalitis despite the lower level of viral multiplication, and that this special susceptibility of the nerve cells to irreversible damage at lower levels of viral multiplication, also, was genetically determined.[25]

In human poliomyelitis, Taylor[26] suggested as early as 1898 that there existed a tendency to paralysis in certain families. Stephens[27] in 1908 and Aycock[28] in a series of reports between 1934 and 1942 brought forth additional observations in support of this view. In 1948 Czickeli[29] reported the occurrence of 16 cases of poliomyelitis *during different years* among 23 members of the families of four married brothers in Austria. I have also been impressed in my own experience with the not infrequent occurrence of paralytic poliomyelitis in multiple members of certain families, especially the instances in which the events are separated by years or generations. The very interesting study reported by Addair and Snyder[30] on the family relationships of every case of crippling, paralytic poliomyelitis which occurred in McDowell County, West Virginia, over a period of 50 years led to the conclusion that the most reasonable explanation for the observed incidence was that susceptibility to paralytic poliomyelitis was determined by an autosomal, recessive gene. This conclusion appears particularly plausible to me in the light of my own experiments on the inheritance of susceptibility to other neurotropic viruses in mice.

It also seems to me that the most plausible explanation for the exceptionally high paralytic attack rates in the relatively isolated, highly inbred populations (listed in Table 3) is that they represent instances of primary infection in populations of special genetic susceptibility. The consequences of poliomyelitis infection among these populations should therefore not be regarded as something that might be expected in any population spared from contact with poliomyelitis virus. There are many other instances of relatively isolated populations both in the Arctic[31] and in the tropics of Africa,[14] in whom there

is evidence of widespread dissemination of poliomyelitis virus with only rare instances of paralytic poliomyelitis.

ROLE OF VIRULENCE OF DIFFERENT STRAINS OF VIRUS

There are certain epidemiologic and laboratory observations which suggest that different strains of poliomyelitis virus vary in virulence. The capacity to produce a higher incidence of the paralytic disease or of a higher case fatality rate may be taken as an indication of greater virulence in human beings. In monkeys the virulence of a given strain of virus can be measured by the incidence of nonparalytic infections, by the severity of paralysis, by the capacity of small numbers of intracerebral infective doses to produce paralysis after inoculation by extraneural routes, and by the level of viral multiplication in the central nervous system. Since the host also plays a role in determining the outcome of infection, it is self-evident that it is not a simple matter to correlate events in individual patients with the behavior of strains of virus recovered from them in monkeys.

That is not to say, however, that observations on large numbers of strains derived from many patients with different clinical varieties of illness due to poliomyelitis infection cannot yield useful information on variations in virulence among different strains of virus. Studies carried out in Cincinnati on individual strains of virus recovered from 24 patients who in 1947 exhibited "summer grippe," nonparalytic or paralytic poliomyelitis provided suggestive evidence for a correlation between the severity of the clinical condition in patients and the virulence of the strains in monkeys and indicated that strains of high and low virulence were in circulation at the same time.[32] Thus, the four strains recovered from patients with summer grippe produced predominantly nonparalytic infections in monkeys; 7 of the 10 strains recovered from paralytic patients after intracerebral passage in monkeys yielded high titers, i.e., 10^{-3} or more; while 8 of the 10 strains recovered from nonparalytic patients yielded low titers. Seventeen of these strains, of both high and low virulence for monkeys, were typed in the program sponsored by the Typing Committee of the National Foundation for Infantile Paralysis and all were found to belong to the same immunological type (Type 1—Brunhilde-like).

Examination of the poliomyelitis morbidity statistics for a variety of communities reveals annual variations in incidence which cannot possibly be explained away on the basis of irregularities in reporting and recognition of cases. The data for New York, London, and Berlin, shown in Table 1, have already been discussed, and it is clear that in these cities, as in many other communities, clinically recognizable poliomyelitis is a disease of relatively low incidence except during the epidemic years, which occur at unpredictable and sometimes long intervals. In New York City, for example, the attack rates during the five epidemic years have been 6 to 46 times higher than the mean annual rate for the 17 nonepidemic years between 1928 and 1947 (Table 4). The attack rate of 20.6 per 100,000 in the first London epidemic of 1947 was about ten times higher than the mean annual

TABLE 4

Comparison of Poliomyelitis Morbidity and Case Fatality Rates During Interepidemic and Epidemic Years in New York City

Years	*Number of Cases per 100,000*	*Case Fatality * Per cent*
Mean annual rate for interepidemic years, 1928–1947	3.8	—
1916	176.3	27.1
1931	59.1	12.2
1935	28.5	4.4
1944	24.6	5.4
1949	30.3	7.3

* The case fatality rates are quoted from Greenberg, Siegel, and Magee.[33]

rate of 1.96 for the period of 1932 to 1946. The attack rate of 76.2 per 100,000 in the first Berlin epidemic of 1947 was 20 times higher than the mean annual rate for the period of 1928 to 1946.

In 1928 Aycock [34] pointed out that the accumulation of nonimmunes cannot be a major factor in the production of epidemics, because the age incidence was not found to vary materially from year to year, even during epidemics which occurred after a number of years of comparative freedom from the disease. Twenty years later, I [35] showed that Aycock's observation was still valid, despite the fact that age selection patterns had changed over the years in certain communities. The conclusion seems inescapable that poliomyelitis epidemics are the result of the invasion of a community by strains of unusual virulence, and that the reason the age incidence generally does not vary materially from year to year is that strains of the same immunological variety but of lower virulence are widely disseminated during interepidemic years.

Although the poliomyletis experience of any but the most isolated communities can supply data to illustrate this point, the epidemic in Malta and Gozo in 1942 and 1943 is especially informative.[36] During the 20 years between 1921 and 1941, the mean annual poliomyelitis rate was roughly 1 per 100,000. In the 1942–1943 epidemic the paralytic attack rate was 158 per 100,000, but 93 per cent of all the cases were in children under 5 years of age. While the older Maltese children and adults were thus predominantly immune, the United Kingdom troops, aged 20 to 40 years, who lived in their midst had an attack rate of 250 per 100,000. The virulence of the strain may further be attested by the fact that despite great vigilance for nonparalytic cases, among the troops, 55 of the 57 cases were paralytic, with a case fatality rate of 19.3 per cent.

A high case fatality rate may in itself also be an index of the special virulence of certain epidemic strains, without relationship to the involvement of older age groups. The data for New York City in Table 4 show that the case fatality rate was highest for the 1916 epidemic when the attack rate was highest and 79 per cent of the cases were under 5 years of age, practically all the reported cases being paralytic. Beginning with the 1931 epidemic, approximately 40 per cent of all reported cases during the epidemic years have been nonparalytic. However, even if one multiplies the case fatality rates of the later epidemics by two to correct for this, it is still evident that the milder epidemics in New York City have also had lower case fatality rates. A striking example of variation in virulence reflected more in the case fatality rate than in the paralytic rate is available in two carefully studied outbreaks in Cincinnati and vicinity in 1911 and 1947 (Table 5). It may be seen that despite the fact that 83 per cent of all paralytic cases in 1911 occurred in children under 5 years, among whom lower case fatality rates usually obtain, the case fatality

TABLE 5

Case Fatality Rates During Two Carefully Studied Outbreaks of Poliomyelitis in Cincinnati and Vicinity

Year	*Number of Paralytic Cases Per 100,000*	*Case Fatality among Paralytic Cases Per cent*	*Paralytic Cases under 5 Years of Age Per cent*	*Nonparalytic Cases Reported Per 100,000*
1911 *	25.4	30.7	83	0
1947 †	11.4	2.2	40	10

* The 1911 data are calculated from the report by W. H. Frost.37
† The 1947 data are based on a personal study aided by Dr. J. H. Peyton.

rate was 30.7 per cent as compared with 2.2 per cent of the paralytic cases in 1947, even though 60 per cent of the paralytic cases were over 5 and 13 per cent over 15 years of age.

In reviewing the experience of the Army with poliomyelitis during World War II, I [9] was impressed with the variations in virulence of strains encountered in the few explosive outbreaks which occurred in the United States. The attack rates in these few explosive outbreaks among young adults varied from 57 per 100,000 to 2,500 per 100,000. In some of these outbreaks, there were nonparalytic cases as well as paralytic, while in others, despite a careful search by qualified consultants, all the cases were paralytic. The case fatality rate varied from zero among 17 cases, 8 of which were nonparalytic, representing an outbreak with an attack rate of 2,300 per 100,000, to 36 per cent among 11 cases, representing an outbreak with an attack rate of 800 per 100,000, all paralytic.

In the Philippines, shortly after the invasion in 1944, the case fatality rate was 62.5 per cent among 16 paralytic cases in Northern Leyte and 5.3 per cent among 19 paralytic cases in Central Leyte. It is noteworthy, however, that a careful investigation revealed no recent cases of poliomyelitis among the natives on Leyte. The last definite case of poliomyelitis reported from Leyte had been in 1938, and the civilian health records of the area were found to be remarkably complete because the Japanese authorities required a daily report on infectious diseases. The Filipino population numbered over 61,000 in the area in which poliomyelitis was occurring at a high rate among American adults. While no clinical poliomyelitis was discovered among them, the circumstances left little doubt that the natives were the reservoir of the virulent virus which was infecting the Americans. The suggestion that the tropical climate was, by itself, responsible for this high incidence [38] does not find support in the fact that these troops were free from poliomyelitis during the preceding years while they were stationed elsewhere in the Southwest Pacific beyond the range and influence of native villages. This brings us to a consideration of the problem why the virulent strains of poliomyelitis virus produced little or no recognizable paralysis, even among the Filipino children, while the American troops in this particular area and time were becoming paralyzed at a rate which was at least 20 times higher than that obtaining for the troops in the United States or in Europe.[9]

INFECTION UNDER THE INFLUENCE OF MATERNAL IMMUNITY

It is now well established that poliomyelitis antibodies follow the pattern of other antibodies in human beings with regard to their transmission across the placenta and their period of persistence during the first months of postnatal life.[10] While the time of disappearance of placentally transmitted antibody generally depends on the original concentration, the majority of infants are devoid of placentally transmitted antibody at 5 to 6 months of age. It has occurred to many people that exposure to poliomyelitis virus during that period of infancy when placentally transmitted antibody has dropped to low levels might result in modified or inapparent infection capable of engendering active immunity. Thus, it appeared possible that in countries and population groups with a high rate of poliomyelitis virus, the vast majority of the population might acquire their infection and immunity while still partially protected by their maternal antibody.[13]

It seemed to me that if the events postulated by this hypothesis actually occurred, the incidence of poliomyelitis antibody between the sixth and twelfth months of life should be very high in

TABLE 6

Appearance of Lansing Poliomyelitis Antibody in Early Childhood in the United States and the Far East

Region	Per cent Positive *				Number Tested			
	9 to 23 Months	2 + 3 Years	4 + 5 Years	18 to 50 Years	9–23 Months	2 + 3 Years	4 + 5 Years	18 to 50 Years
Cincinnati (Ohio), U.S.A.	2	20	40	100 †	43	40	40	30
Korea and Okinawa	13	70	97	100	23	36	31	30
Japan	23	50	64	90	47	55	67	40

* Positive = undiluted serum protected against at least 50 LD_{50} of Lansing virus.

† This applies only to 30 individuals of lower income group. In a group of 10 in the middle income group, only 50 per cent were positive.

parts of the world where the viruses were believed to be disseminated very extensively and rapidly, in contrast to the relatively low incidence observed in the United States under 2 years of age even among children from low income groups. Accordingly, early in 1947, together with Dr. Irving Young, I undertook to compare the incidence of Lansing antibodies in infancy and early childhood, beginning with nine months of age, among the children of the lower income groups in Cincinnati with that occurring in Korea, Okinawa, and Japan. The results of tests on 482 sera are summarized in Table 6. The data are grouped under 9 to 23 months, 2 and 3 years, and 4 and 5 years, because the total numbers of sera tested and the results obtained did not warrant their subdivision into smaller intervals. It is evident that, in general, the Lansing antibodies are reacquired more rapidly by the children in the Far East than by those from the lower income groups in Cincinnati.

Similar tests recently carried out by other workers indicate that poliomyelitis antibodies are acquired more extensively at an earlier age in certain other population groups. Thus, Hammon informed me that about 50 per cent were positive in Guam between 1 and 2 years of age (although the impression conveyed in the published accounts of this work [39] was that this high incidence developed before 1 year of age). Paul [2] recently found 50 to 75 per cent positive between 14 and 24 months of age in a village close to Cairo, Egypt, while less than 10 per cent were positive in the 7 to 12 month age group. It is evident from these data that neither among the lower income groups in the United States nor in the Far East or Egypt were Lansing antibodies (and presumably infection) acquired to any significant extent during the period of diminishing placentally transmitted antibody. The hypothesis of extensive immunization as a result of modified or subclinical infection among certain population groups during the first year of life therefore became untenable.

In a search for other factors which might influence the response of infants to poliomyelitis virus, it appeared desirable to obtain information on the antipoliomyelitic properties of mother's milk, particularly that which might be consumed after the placentally transmitted antibodies had disappeared from the blood. Breast feeding is common for as long as two years in the Far East and Africa, and among Eskimos it is said to be common for as long as three years. The age-specific attack rates for the unusual epidemic which occurred among Canadian Eskimos, shown in Table 7, emphasize the remarkable sparing of the youngest children. The 4 per cent attack rate among the zero to 4 year age group represents two cases in children over 3. Since, in my opinion,[40] the available evidence points to the mouth as the usual portal of entry of poliomyelitis virus, it became of

TABLE 7

Poliomyelitis in Eskimos—District of Chesterfield Inlet, Canadian Arctic February 14–March 7, 1949

Age Group Years	Population	Paralysis Per cent
0– 4	53	4
5– 9	56	23
10–19	59	32
20–29	30	20
30–39	33	21
40–49	19	26
50 and Over	25	20
All Ages	275	21

From data by Peart, A.F.W. *Canad. Pub. Health J.* 40:405, 1949.

considerable interest to know what human milk might do to the virus.

The results of simultaneous tests on the milk and serum of 40 Cincinnati mothers, summarized in Table 8, indicate that early as well as late milk contains a substance capable of neutralizing poliomyelitis virus.[41] However, unlike certain other antiviral factors which we have discovered in human milk, the antipoliomyelitic factor appears to be specific antibody synthesized in the breast and appears only in mothers with antibody in their serum and presumably, also, previous exposure to infection. However, experiments which I have carried out thus far with *Cynomolgus* monkeys infected with Y-SK virus by the oral route have failed to demonstrate that the drinking of antipoliomyelitic milk can prevent or modify the paralytic consequences of the infection. It is still possible that in human beings the consumption of very much larger amounts of milk and very much smaller amounts of virus may serve to diminish the incidence of infection during the period of breast feeding. However, the serological survey data shown in Table 6 indicate that approximately 80 per cent of the children were still without antibody by the end of the second year of life, when breast feeding usually ceases in Japan, Korea, and Okinawa. Accordingly, the lower incidence of paralytic poliomyelitis in the Far East and in certain other primitive communities cannot be attributed to subclinical immunization of infants under the influence of either placentally or milk-transmitted antibody.

ROLE OF SIZE OF INFECTING DOSE OF VIRUS

The possibility has long been entertained in epidemiologic thinking that the severity of an infection may depend on the size of the infecting dose. Accordingly, it has occasionally also been assumed that small doses of poliomyelitis virus might be more likely to give rise to clinically mild or inapparent infections, while larger doses might result in a higher incidence of the more severe paralytic infections. The difficulty with this hypothesis has been that no experimental confirmation of its occurrence could be obtained in animals infected by the intracerebral or intranasal routes. Experimental infection by these routes was pretty much an all-or-none phenomenon, i.e., a given dose of virus either produced paralysis, the severity of which was not dependent on the size of the dose, or no evidence of inapparently

TABLE 8

Antipoliomyelitic Activity of Undiluted Human Milk and Serum

Income Group	Days after Delivery	Milk: Number of Mothers Tested	Milk: Per cent Positive *	Serum: Number of Mothers Tested	Serum: Per cent Positive
Low	2 to 5	10	100	10	100 †
	38 to 340	20	75	20	100 †
Middle	2 to 5	10	40	10	50 †

* Positive = protected against at least 50 LD_{50} of Lansing virus.
† X^2 with Yates correction for small numbers = 12.9.

TABLE 9

Paralysis and Inapparent Infection in Two Groups of Cynomolgus Monkeys After Swallowing Same Amount of Y-SK Poliomyelitis Virus Twice Daily for 3 Days

Group 1—Milk given before and after virus
Group 2—No milk; half total dose of virus on "empty" stomach
(Same Lot of Virus Given to All Monkeys Simultaneously in One Experiment)

Group	Number of Monkeys	Paralysis Per cent	Polio Lesions but No Paralysis	Total Infection Based on Development of Antibody Per cent
Milk	26	54	0	96
"Empty" stomach	10	0	0	70

X2 with Yates correction for small numbers = 6.7; P = 0.01.

acquired immunity. The occurrence of nonparalytic infections in monkeys inoculated with certain freshly isolated strains has, as a rule, been found to be not dependent on the dose of virus.

I should like to present the results of a recent experiment with *Cynomolgus* monkeys infected by the oral route with the mouse-adapted Y-SK poliomyelitis virus which strongly suggests that the amount of "ultimately effective" virus can determine whether or not the consequences of the infection shall be predominantly paralytic or nonparalytic. The experiment, summarized in Table 9, was not planned as such but is the result of an accidental procedure by which the control monkeys received neither food nor water from 2 to 3 p. m. until about 10 a. m. the following morning and were given the first dose of virus on an empty stomach at 9 a. m. on each of the three days of virus administration. It should be pointed out that the method of infection was completely nontraumatic, in that the monkeys were merely allowed to swallow 2 ml. of 10 per cent virus suspension at 9 a. m. and 3 p. m. on each of three days. There was no swabbing or rubbing of the buccal or pharyngeal mucosa, as has been done by some other investigators.

The monkeys which received milk were allowed to drink 20 ml. of milk immediately before each dose of virus and also at noon, not only on the days of virus administration but also one day before and for three days thereafter. It may be seen that while 54 per cent of the monkeys which were drinking milk developed paralysis and 96 per cent developed antibodies for the virus, none of the 10 control monkeys, which received half the total dose of virus on an empty stomach, developed either paralysis or poliomyelitic lesions in the nervous system, and yet 70 per cent developed neutralizing antibodies.

Faber and Dong [42] have reported that Lansing virus is rapidly destroyed at a pH which is found in an "empty" stomach. The most plausible explanation of the results of this experiment is that the milk neutralized the stomach acidity and more of the virus was available for infection. Other experiments have indicated that a drink of water immediately before the virus also increases the incidence of paralysis but is not as effective as milk. The possibility that small doses of virus taken by mouth can give rise to immunity with only a small risk of paralysis and that such simple physiologic factors as increased stomach acidity can serve to reduce the size of the infecting dose are of great epidemiologic importance and will be the subject of considerable additional experimentation. It is also clear that in population groups which live under conditions that are especially conducive to extensive dissemination of poliomyelitis virus, the continuous availability of small doses of virus may be an important

factor in the acquisition of immunity without paralysis.

OTHER FACTORS PREDISPOSING TO PARALYTIC CONSEQUENCES OF POLIOMYELITIS INFECTION

Such factors as tonsillectomy, severe exertion, pregnancy, and various inoculations may under certain conditions serve to convert any otherwise inapparent or nonparalytic infection into a paralytic disease. Some of these factors are also more common in some population groups than in others. The 1936 report by Lambert [43] of a severe epidemic of paralytic poliomyelitis among Samoan children inoculated with neoarsphenamine for yaws provides a good example not only of one way in which "civilization" may contribute to the increase of paralytic poliomyelitis, but perhaps also one of the earliest incidents suggesting the role of inoculations at a time when a virulent virus is widespread. The Samoans believed that the neoarsphenamine injections were responsible for the paralysis, while Lambert and his associates thought that it was pure accident, since the disease was typical of poliomyelitis. Since the paralysis, as a rule, affected first the inoculated extremity within seven to ten days after the injection, it is quite probable, in the light of more recent observations on the effect of other types of inoculations during epidemic periods, that the combined views of the Samoans and of Dr. Lambert were closest to the truth.

SYNTHESIS

The data that I have presented in my opinion justify the conclusion that the paralytic consequences of poliomyelitis infection are not the same in different parts of the world and in different population groups. Experimental observations on other neurotropic viruses, as well as epidemiological observations on human beings, suggest that genetic factors are of importance in determining whether poliomyelitis infection shall result in paralysis, minor illness, or inapparently acquired immunity. The extraordinarily high paralytic attack rates among certain highly inbred and isolated population groups in the Arctic, as well as in the tropics, may very well be a reflection of the genetic constitution of that particular population. An analysis of a variety of epidemiologic data leads to the conclusion that epidemics are caused by strains of virus of unusual virulence and that during the interepidemic years strains that are immunologically identical or related but of low virulence are also widely disseminated.

The incidence of paralytic poliomyelitis during interepidemic years is relatively low even in communities in which poliomyelitis is an important problem. The frequency with which epidemics strike a given community actually determines whether, over the years, the incidence of the paralytic consequences of poliomyelitis infection shall be high or low. Thus, the march of epidemics is in fact equivalent to the dissemination of strains of virus of high virulence among populations that are insufficiently immunized by strains of low virulence. The low incidence of paralytic poliomyelitis, even among the children of the Far East, Africa, and certain other primitive population groups, at a time when virulent virus is known to be in their midst, as indicated by the high attack rates among adult foreigners in their midst, cannot be attributed to subclinical immunization of infants under the influence of either placentally or milk-transmitted antibody, because serological surveys have revealed that 80 to 90 per cent are still without antibody at the end of the first or second year of life. Serological surveys furthermore have brought forth more than suggestive evidence that the incidence of paralytic poliomyelitis is

inversely proportional to the extensiveness of viral dissemination. In general, the poorer the population, its standard of living and sanitation, the more extensively is poliomyelitis virus disseminated among them and the lower is the incidence of paralytic poliomyelitis when virulent strains of virus come their way.

Experimental observations on infection of *Cynomolgus* monkeys by the oral route suggest that small doses of virus can give rise to immunity with only a small risk of paralysis, and that such simple physiologic factors as increased stomach acidity can serve to reduce the size of the infecting dose. Population groups which live under conditions that are especially conducive to the continuous dissemination and consumption of small doses of virus may thus be in the best position to acquire poliomyelitis immunity without paralysis.

In a recent newspaper I read an account of the first English translation of important letters by Sigmund Freud. In one of these letters Freud wrote: "Even lectures I have given up, in order not to be forced to tell something that I only hope to learn some day." I realize now how much his observation applies to the lecture I have just given and can only hope that this lecture will stimulate rather than inhibit the learning process.

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New Markle Scholar Nominations

Nominations for the fifth group of Scholars in Medical Science are now invited by the John and Mary R. Markle Foundation. The dean of each medical school may nominate one candidate—on or before December 1, 1951. The grants are intended for candidates who have completed the usual fellowship training in an area of science related to medicine and who hold full-time faculty appointments in a medical school for the academic year 1952–1953. A grant of $30,000—payable $6,000 annually for 5 years—is made to the school toward the support of each scholar and his research.

A total of 67 scholars in the United States and Canada are currently being aided through these research grants. In both 1950 and 1951, 20 were selected. The number for the coming year has not been determined. A booklet of complete information about the plan and suggestions for making nominations is available from the Foundation, 14 Wall St., New York 5.

Atmospheric Conditions and the Spread of Poliomyelitis

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THE more or less continual occurrence of sporadic cases of poliomyelitis throughout the year in the tropics and the tendency for the disease to reach its maximum incidence during the hotter portions of the year in temperate climates, point toward some seasonal factor associated with warm weather as accountable for this seasonal behavior.

The fact that the upper respiratory passages constitute the body area most exposed to atmospheric variations and that this area constitutes a recognized portal of entry for the virus of poliomyelitis [1-8] as well as a point of escape for that portion of the virus perhaps most effective in spreading the disease [9-13] naturally directs attention to this region of the body as of possible significance in relation to seasonal incidence.

In a previous publication [14] certain deductions and some laboratory evidence were presented tending to support this contention. In this discussion we will attempt to see how the development of a selected outbreak of poliomyelitis coincides with the requirements of this hypothesis.

Effect of Respiration upon the Physical Condition of Atmospheric Air—When atmospheric air is breathed, excepting in extreme conditions of temperature and humidity, it is found upon expiration to be uniformly warmed to approximately 90° F. with a relative humidity of approximately 90 per cent, under which conditions it contains approximately 35 grams of moisture per cubic meter. Moreover, in expired air the increase in moisture comes from the respiratory passages, chiefly the nose and throat. Publications dealing with the physical changes in respired air were summarized in 1942 by Winslow, Herrington, and Nelbach.[15] When cool, dry air is breathed, upon being warmed it takes up moisture from the mucous membranes, thus tending to concentrate the secretions through drying, but it may also induce physiological effects, such as enhancing the flow of secretions.

The absolutely moister warmer air of summer, however, exerts these effects to a lesser degree and leaves conditions, it is believed, more suitable for the virus.

The drying effect of respired air is measured, obviously, by the difference in its absolute humidity before inspiration and at expiration, but, since relative humidity is based on absolute humidity at saturation, this drying effect is measured by the difference in relative humidity of atmospheric air at inspiration and the relative humidity of 90 per cent observed in respired air, both considered at 90° F. Thus, the higher the relative humidity of atmospheric air warmed to 90° F., the less this drying effect; we shall employ this relative humidity curve, together with the "incidence of poliomyelitis" curve, to determine whether any correlation is apparent between them.

It is obvious, however, that factors other than atmospheric conditions play a part in determining the spread of an

epidemic. For instance, no matter how favorable the conditions for spread of the disease or how susceptible the population, an epidemic cannot develop until the virus is introduced and becomes established in the community. Likewise, an epidemic cannot progress, even though the virus is present and satisfactory conditions for its spread exist, unless a sufficient number of susceptible individuals are present.

Under most circumstances the presence or absence of these two essential factors is a matter of conjecture until an outbreak occurs. For example, if an outbreak begins later or ends earlier than usual for a community, there is no ready means of determining whether these peculiarities are due to the absence of one of the two obvious factors just mentioned or to atmospheric or some other circumstances.

In order to minimize this difficulty, a small area with an outbreak showing two or more peaks of incidence was sought, since the first peak would demonstrate the presence of the virus in the community and the last one the existence of a reserve of susceptible individuals. Thus, what occurred between the first and last peaks would be explained possibly, or indeed probably, by some other factor or factors. Such an outbreak was found in the District of Columbia plus Arlington County, Virginia, a relatively flat area 10 miles square which represents the original District of Columbia. Fortunately, suitable atmospheric records were available for this area from the U. S. Weather Bureau, the records and certain technical advice being supplied by meteorologists W. A. Wood and E. T. Lay, whose assistance is gratefully acknowledged.

Weather Data—The atmospheric data here employed were recorded by the U. S. Weather Bureau at the Washington National Airport, south of the Potomac River and slightly south of the geographical center of the study area. The river apparently offers no barrier to the passage of atmospheric changes to its two shores but probably does tend to hinder the transfer of infection from bank to bank.

The humidity calculations were consistently based on readings taken at 7 a.m.; however, readings taken at other times could have been employed equally well, since, when the relative atmospheric humidity is adjusted to 90° F., the temperature of respired air, the results from the cooler 7 a.m. and the warmer 1 p.m. readings become practically identical (Table 1). It is also quite apparent that the relative humidity to which atmospheric air is altered when warmed to 90° F. by breathing, while varying from week to week, is far more uniform than is apparent when its humidity at varying atmospheric temperatures is considered and more uniform than the direct temperature readings.

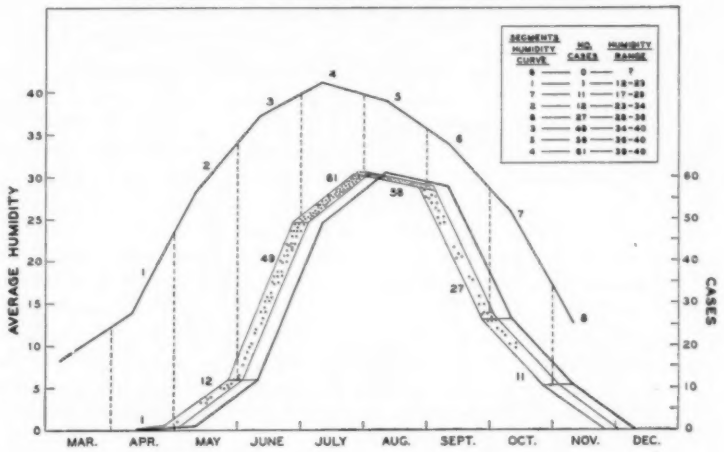
TABLE 1

Average Weekly Relative Humidity of Atmosphere 7 a.m. and 1 p.m. Adjusted to 90° F.

Wks.	7 A.M.	1 P.M.	Wks.	7 A.M.	1 P.M.	Wks.	7 A.M.	1 P.M.	Wks.	7 A.M.	1 P.M.
1	—	—	15	8	11	29	48	47	43	25	24
2	11	10	16	12	12	30	38	36	44	25	27
3	12	10	17	18	19	31	48	45	45	21	20
4	15	17	18	25	29	32	35	33	46	12	11
5	14	14	19	25	23	33	34	33	47	12	11
6	9	10	20	28	30	34	44	42	48	10	9
7	14.5	16	21	27	26	35	50	48	49	—	—
8	8	7	22	37	36	36	40	42	50	—	—
9	6	5	23	33	29	37	42	42	51	—	—
10	7	7	24	36	33	38	33	33	52	—	—
11	9	10	25	38	38	39	23	25			
12	9	9.5	26	38	41	40	35	35			
13	15	13	27	43	44	41	29	30			
14	14	12	28	45	40	42	22	26			

FIGURE 1

AVERAGE MONTHLY RELATIVE HUMIDITY OF ATMOSPHERIC AIR FOR DISTRICT OF COLUMBIA AND ARLINGTON CO., VA., 1950 AND POLIOMYELITIS CASES BY DATE OF ONSET AND OF EXPOSURE



Our problem, then, is to see whether this curve of relative humidity of atmospheric air adjusted* to a temperature of 90° F. bears a significant similarity to the actual curve of incidence of poliomyelitis for the same time and area.

The Outbreak—During 1950 there were 221† resident cases of widely distributed poliomyelitis reported from the area, 184 from north of the Potomac and 37 from south of the river. The diagnosis was verified through hospitalization in 213 of the patients and in the remaining 8 by health department diagnosticians. Thirty-six per cent of the cases were paralytic. The population of the area was in excess of 1,000,000.

Three paralytic cases of poliomyelitis developed in the area during February to May, 1950, thus signifying the presence of the virus. The epidemic, however, did not begin until the second week of June and the last case developed in the middle of November.

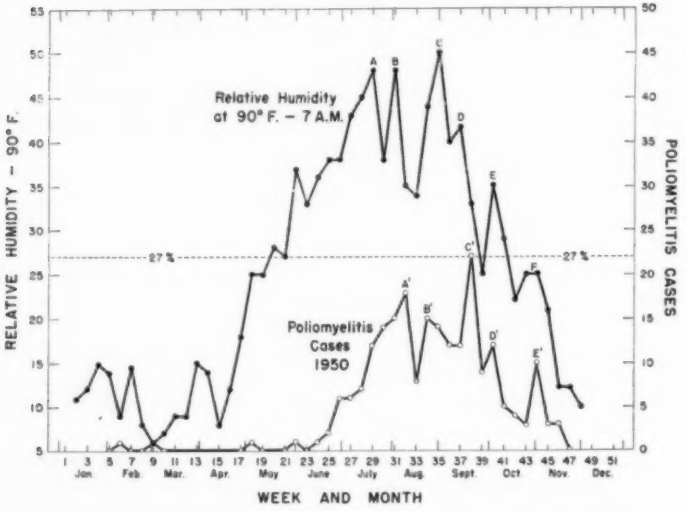
The general similarity of the curve of incidence of poliomyelitis by month of onset and the curve of monthly average relative humidity of atmospheric air warmed to 90° F. was pointed out in a previous publication[14] for two outbreaks. The same type of similarity is apparent for the outbreak considered here. (District of Columbia and Arlington County, Virginia, 1950), Figure 1. Moreover, by employing the usually accepted incubation period of 7–14 days it is possible to plot an approximate probable date of effective exposure for each poliomyelitis victim as some time during the second week prior to onset of symptoms. Projecting this band of exposure dates by monthly intervals of time upon the curve of relative humidity, it is possible to show any correlation which might exist between the magnitude of these corresponding segments. When the segments of the humidity curve are arranged in order of their ascending relative humidities, it is found

* These adjustments were made on a Psychrometric Circulator, W B Form No. 1183A, manufactured by G. Felsenthal and Sons, Inc., Chicago, Ill.

† We are indebted to C. C. Dauer, M.D., Epidemiologist of the District of Columbia Health Department and to R. G. Beachley, M.D., Health Director of Arlington County, Virginia, for the occurrence of poliomyelitis information.

FIGURE 2

AVERAGE RELATIVE HUMIDITY BY WEEKS – 7 A.M. READINGS – ADJUSTED TO TEMPERATURE 90° F. – NATIONAL AIRPORT, VA., 1950. POLIOMYELITIS CASES, DISTRICT OF COLUMBIA AND ARLINGTON CO., VA. BY WEEK OF ONSET.



that the monthly incidence of poliomyelitis follows the same order (Figure 1).

Provided this correlation is of significance, it should be possible to show a more detailed correlation between the two curves by employing shorter intervals of time. We have therefore made similar comparisons using weekly rather than monthly intervals.*

The weeks employed in the study run from Thursday through Wednesday. This alteration from the usual week was made in order to bring 14 days of consecutive low humidity which occurred in August into two whole weeks; otherwise, combining several days of this low period into the week preceding and the week following tended to distort the humidity curve in its most important area, in so far as our study is concerned. The same 7 day periods were, of course, employed for recording the dates of onset for poliomyelitis.

In Figures 1 and 2 it may be seen that poliomyelitis incidence began to rise in June, when the atmospheric conditions were such that the relative humidity of atmospheric air at 90° F. rose above 27–28 per cent. The incidence also fell rapidly three weeks after this same humidity reading was reached in October. It is interesting to note that Winslow, Herrington, and Nelbach [15] from calculations on vapor pressure showed that marked drying of the respiratory mucous membranes must occur under the following conditions:

Temperature, 53 ° F. with any relative humidity of 90% or less.
Temperature, 60 ° F. with any relative humidity of 77% or less.
Temperature, 70 ° F. with any relative humidity of 54% or less.
Temperature, 80 ° F. with any relative humidity of 39% or less.

* The date of onset for poliomyelitis cases rather than the probable date of exposure is employed, since the variability in incubation period of from 1 to 2 weeks leads to confusion when weekly intervals are employed.

Employing these temperatures with the maximum corresponding relative humidity, and adjusting to a temperature of 90° F., the humidity readings are all found to be uniform, and in each case 28 per cent. Possibly this percentage represents a rather critical humidity below which poliomyelitis spreads with difficulty.

It is quite apparent from a consideration of Figures 1 and 2 that poliomyelitis can spread while the humidity is above this 28 per cent relative humidity level; therefore, any alterations in humidity above this level are operating in a zone where poliomyelitis can and does spread; and thus it appears that any influence which change of humidity in this zone may exert on such spread will be a relative rather than a sharp all-or-none response.

The Curves—There is a marked general similarity between the average weekly humidity curve of atmospheric air at 90° F. and the curve of poliomyelitis by corresponding periods for this area, 1950, Figure 2. There are also 4 peaks of high relative humidity, A, B, C, and D on the crest of the humidity curve, and 4 corresponding peaks of high incidence on the crest of the curve for poliomyelitis incidence, A^1, B^1, C^1 and D^1. In each instance the peak on the curve of incidence follows the humidity peak by a constant interval of 3 weeks. In addition, it may be noted that the highest peak of humidity, C, corresponds to the highest peak for poliomyelitis C^1.

If the concept which we have expressed is correct it would appear that the interval from a relatively favorable humidity for the spread of poliomyelitis to the appearance of an increased number of cases in this outbreak is about 3 weeks.

It is noted that a fifth pair of peaks, E and E^1, are also apparent in the curves, with an interval of 4 weeks intervening. This prolonged interval may possibly be explained by the fact that during the latter part of September the average relative humidity fell below the 28 per cent humidity line and at the beginning of the rise in humidity from 25 per cent to peak E the case incidence actually fell, thus tending to prolong the interval.

Likewise a sixth peak of humidity, F, is apparent which developed below the 28 per cent humidity line, although no corresponding rise in cases occurred.

The general similarity between the two curves, which extends through five separate peaks with a notably uniform period of lag, supports the belief in a significant relationship between humidity at 90° F. and the development of poliomyelitis.

The study, however, is open to the criticism that it involves but a small number of cases (221). In an effort to overcome this objection the original area of study was enlarged from 10 to 20 miles in all directions by including the three counties completely surrounding it.

Epidemic in Enlarged Area—The enlarged area, which includes the original area and the three counties * surrounding it, is from flat to rolling in contour but has no elevations sufficient to influence its climate significantly. It is partially urban and partially rural, has a total population of approximately 1,500,000, and during 1950 reported 429 cases of poliomyelitis.

Meteorological conditions prevailing at the National Airport, which is roughly central, are considered to be representative for the whole area. The same humidity curve employed in Figure 2 was therefore employed in this extended study. This curve, together with the curve of weekly incidence of polio-

* Montgomery and Prince Georges Counties, Maryland, and Fairfax County, Virginia. We are indebted to Drs. V. L. Ellicott, T. S. Englar, and F. C. Heath, the respective health officers of these counties, for the poliomyelitis data here employed.

myelitis for the whole area, is shown in Figure 3.

The general similarity of the two curves is even more apparent than in Figure 2. It should be noted, however, that the relative positions of the early peaks A and B to A^1 and B^1 have undergone a slight change and that a slight elevation of cases, F^1, not apparent in Figure 2 has made its appearance. This elevation follows humidity peak F by 2–3 weeks.

SUMMARY

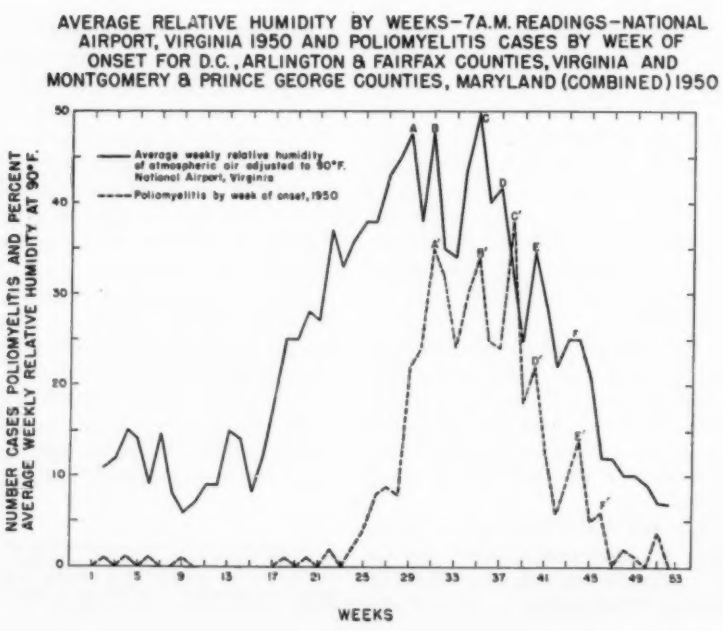
When air of usual temperature and humidity ranges is breathed, it is warmed to a rather constant temperature of 90° F. and through absorption of moisture from the upper respiratory tract its relative humidity is raised to approximately 90 per cent.

A definite correlation between the curve of average relative humidity of atmospheric air warmed to 90° F. and the curve of incidence for recognized poliomyelitis for the same area, based upon either monthly or weekly intervals of time, supports the view that a dry air at 90° F. tends to prevent infection with poliomyelitis in a population, while a moist atmosphere at the same temperature tends to favor its spread.

The incidence further suggests that relative humidity of from 27 to 28 per cent for atmospheric air warmed to 90° F. represents a critical level below which poliomyelitis spreads with difficulty.

It is realized that the numbers of recognized cases of poliomyelitis involved in this study are small and that the significance of any single rise in number of reported cases which appears to be related in time to a change of relative humidity at 90° F. is of questionable statistical significance. How-

FIGURE 3



ever, the fact that such an occurrence was repeated five times lends support to a probable significant relationship between the two phenomena.

The evidence suggests that it may be possible to predict with some degree of probability the course of an established poliomyelitis outbreak in a limited area for about three weeks in advance. Especially would this appear possible when a fall in the relative humidity of atmospheric air warmed to 90° F. occurs.

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Training Center For Premature Care

North Carolina's first training center for premature infant care has been established by Duke University as a part of the state's Premature Program. Nurses will be trained in caring for premature babies at the School of Nursing and training for physicians may later be developed. The Program, administered by the State Health Department with the sponsorship of the State Pediatric Society, has had six service treatment centers for two and a half years. In that time deaths of premature babies at the centers have been cut in half. It is estimated that more than 8,000 premature babies are born in North Carolina annually of whom half need care at special hospital centers.

Criteria of Immunity and Susceptibility to Mumps in Young Adults*

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A CLASS of 100 Tufts College medical students, averaging 22 years of age, volunteered for a study of mumps. Some of their data were reported by Enders and his group.[1, 2] Students were asked to check their mumps histories with their parents and were supplied with the terms for the disease in their parents' mother tongue when this was not English. Fifty-five reported prior attack. Complement-fixation testing with monkey-parotid antigen, performed by Dr. John Enders's laboratory, disclosed 56 students whose sera were positive. The rather weak correlation between history and serological results is shown in Table 1.

TABLE 1
Relationship between History of Prior Mumps Attack and First Complement-Fixation Test Results

First Complement-Fixation	History			
	Positive	Unknown	Negative	Total
Positive	37	7	12	56
Negative	18	6	20	44
Total	55	13	32	100

Skin tests were next performed on each student with monkey-parotid and with allantoic fluid mumps antigens, provided by Dr. Enders, together with noninfected material as controls. The parotid antigen gave more decisive results, with 66 positives. Table 2 shows a weak correlation between skin test and serological results.

TABLE 2
Relationship between First Mumps Skin Test Results (48 hour reading) and First Complement-Fixation Test Results

First Complement-Fixation Test	Skin Test		
	Positive	Negative	Total
Positive	45	11	56
Negative	21	23	44
Total	66	34	100

Eight days after the insertion of the skin test antigens, sera were obtained from the 44 students originally negative, and their complement-fixation status was reëxamined. Thirty-two of these had become positive in the interval and only 12 remained negative. Table 3 now shows a very good agreement between positive history and final positive com-

TABLE 3
Relationship between History of Prior Mumps Attack and Final Complement-Fixation Test Results

Complement-Fixation Test	History			
	Positive	Unknown	Negative	Total
1st or 2nd Positive	52	12	24	88
Both Negative	3	1	8	12
Total	55	13	32	100

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 2, 1950.

plement-fixation results. This fact, together with the minimal antigen content of the skin test materials and the short interval, suggests that the conversions were due to recall or "booster" rather than to primary antigenic stimulus.

Twenty days after the first skin test, most of the 34 students who had not reacted originally were retested with parotid skin test antigen and only 17 were found to be negative. The correlation of total reactors with final complement-fixation results in Table 4 is now more satisfactory. However, the time interval is such that primary sensitization to virus protein may have occurred.

TABLE 4
Relationship between Final Mumps Skin Test Results and Final Complement-Fixation Test Results

Complement-Fixation Test	Skin Test: 1st or 2nd Positive	Skin Test: Both Negative	Total
1st or 2nd Positive	75	10	85
Both Negative	3	7	10
Total	78	17	95 *

* 5 individuals absent at second skin test.

Five definite cases of mumps and 1 doubtful case occurred among these students (Table 5) in their remaining 30 months of primarily clinical study. The doubtful case developed submaxillary swelling only, while away on vacation. He had previously given a positive history and had shown positive initial skin and serological tests. He showed no serological rise after the supposed attack. Of the 5 definite cases, 2 had given a positive history, none had shown a positive original skin test, but 2 had been positive on retest (primary sensitization?). All 5 were in the small group of 12 consistently negative on complement-fixation.

These findings indicate that, in young adults, a positive history of mumps is a

TABLE 5
Mumps Study Data for the Six Individuals Subsequently Reporting an Attack Diagnosed As Mumps

Case	History	Skin Test: 1st	Skin Test: 2nd	Complement-Fixation: 1st	Complement-Fixation: 2nd
ES *	+	+		+	
DE	—	—	+	—	—
CH	—	—	+	—	—
LA	+	—		—	—
RO	+	—	—	—	—
PE	—	—	—	—	—

* Very doubtful case

fair index of immunity, but a negative history is a poor criterion of susceptibility. Unstimulated complement-fixation and skin test results are also equivocal when negative. The complement-fixation results, after stimulation by skin test, indicated that 12 per cent were susceptible. This figure is remarkably close to the 6–10 per cent of young adults developing clinical mumps after household exposure to primary cases.[3] The skin test after stimulation may result in skin sensitivity without immunity. The complement-fixation reading after a "boost" appears to be a reliable index of immunity or susceptibility. This is borne out by the occurrence of 5 clinical cases of mumps among 12 students indicated as susceptible by this criterion and only 1 very dubious case among 99 who must be considered as immune.

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A Method for Delayed Cultural Identification of *Neisseria gonorrhoeae*

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A STUDY has been in progress in this laboratory for the past two years to determine a practical method for the collection and shipment of suspect material for cultural identification of *Neisseria gonorrhoeae*. From the early stages of this study it appeared that the problem included search for both an improved receptacle and an improved medium. It has been our experience that the usual Petri dish is not too suitable for handling by other than bacteriologists or trained technicians, and the fragile nature of the receptacle prevents its adaptability to shipment under the usual conditions found in field military medical installations. After continued close contact with this problem it became apparent that the desirable receptacle should include the following characteristics:

1. Sufficient strength and rigidity to allow simplified packing and shipment
2. Reduced opportunity for contamination
3. Sufficient surface area to allow isolation of fastidious organisms despite rapid growth of contaminants
4. Preservation of medium under storage conditions prior to use

A screw cap container was immediately suggested as meeting several of these criteria. Screw cap test tubes, however, presented too small a surface of medium. A two ounce screw capped prescription bottle was used, each bottle containing 10 ml. of solid medium distributed on the broad rear surface. This provided a layer of agar 3 mm. thick. If bottles of reasonably good manufacture were used, suspect gonococcal colonies could easily be detected without visual distortion.

The media employed in the several tests mentioned herein were as follows:

Medium No. 1—McLeod's Chocolate Agar [1]

Base:	Proteose No. 3 agar	45 gm.
	Agar (Bacto)	5 gm.
	Distilled water	1,000 ml.

Dissolve the proteose No. 3 and plain agar in water and dispense in desired quantities. Autoclave at 15 lbs. for 20 minutes. Add 7.5 per cent human blood, bring resulting solution to 80° C., and maintain at this temperature until medium is a chocolate brown color.

Medium No. 2—Blood Agar

Tryptose blood agar base:	
Tryptose (Bacto)	10 gm.
Beef extract	3 gm.
Sodium chloride	5 gm.
Disodium phosphate	5 gm.
Agar (Bacto)	17 gm.

Dissolve base in 1,000 ml. of distilled water and sterilize in autoclave at 15 lbs. for 15 minutes.

To prepare blood agar, allow base to

cool to 45° C. and add 7.5 per cent human blood.

Medium No. 3—406th Medium (McLeod's Medium utilizing 7.5 per cent human blood plus 10 per cent yeast extract)

Medium No. 4—Carpenter's Medium, II

Component 1.

Base:	
Proteose peptone No. 3	15 gm.
Sodium chloride	5 gm.
Dipotassium phosphate	4 gm.
Monopotassium phosphate	1 gm.
Agar (Bacto)	20 gm.
Cornstarch	1 gm.
Distilled water	500 ml.

Melt agar and dispense 100 ml. amounts in ½ liter flasks. Autoclave at 15 lbs. for 15 minutes.

Component 2.

Base: Hemoglobin (Bacto)	10 gm.
Distilled water	500 ml.

Agitate for 10 minutes or longer at room temperature and filter through gauze to remove undissolved particles. Dispense in 100 ml. amounts in ½ liter flasks. Autoclave at 15 lbs. for 15 minutes.

To prepare final medium, mix components 1 and 2 at 50–66° C. in equal amounts and add 1 per cent Supplement B (Difco).

Material for inoculation in each of three test surveys was obtained from the cervical discharge of 100 females. These individuals were all considered to be infected prostitutes, undergoing treatment at a Japanese hospital. Care was taken in each of the surveys to insure application of material to culture media in an impartial manner by serial alternation with control plates as the initial medium streaked.

Cultures were incubated in large dessicators at 37° C., with increased CO_2 supplied by candle. The screw cap of each bottle was loosened to permit the dissemination of the CO_2 within the bottle. All cultures were examined at 24 hours and typical *N. gonorrhoeae* colonies picked to unaltered chocolate

TABLE 1

Comparison of Three media, Plates and Bottles, Immediate and Delayed Incubation

1948, 100 Cases

	Overall Positivity (all media) *	Control Plates			Bottles, Immediate Incubation			Bottles Held R° 24 hrs.		
		Medium Number 1 (McLeod's)	Medium Number 2 (Blood agar)	Medium Number 3 (none)	Medium Number 1 (McLeod's)	Medium Number 2 (blood agar)	Medium Number 3 (406th)	Medium Number 1 (McLeod's)	Medium Number 2 (blood agar)	Medium Number 3 (406th)
	60%	58(58%)	58(58%)	—	49(84.4%)	46(79%)	51(89%)	35(71%)	29(63%)	44(86%)

* 2 strains recovered from test media not recovered on control plates.

agar for purity. Cultures negative at 24 hours were reincubated for an additional day and reëxamined. If microscopically negative, a standard oxidase test was carried out. Subcultures from these colonies were also made with care to insure their viability by early picking. Fermentation of dextrose with no action on maltose or sucrose was utilized to verify the presence of *N. gonorrhoeae*.

EXPERIMENTAL RESULTS

An incomplete study of 100 cases in 1948 (Table 1) showed the 406th Medium to excel slightly McLeod's Medium in both plates and bottles incubated immediately and held 24 hours at room temperature before incubations at 37° C. in the candle jar. The relatively small loss of positivity (7 per cent by the delay in incubation) occasioned a comparison in 1949 of the then newly advocated Carpenter's II agar[2] with the 406th Medium. Little difference in recovery on Carpenter's (62 per cent) and 406th Medium (63 per cent) for bottles (Table 2) led to a more controlled series of 100 cases in 1950 involving the two media.

Control plates and bottles of both media incubated immediately at 37° C. under reduced O_2 tension resulted in a total of 72 positive *N. gonorrhoeae* cultures. Bottled media of both types delayed 24 hours, showed the 406th Medium to be very slightly more efficient than Carpenter's II agar. As can be seen in Table 3, recovery in positive cases was 75 per cent for the 406th Medium, as compared with 71 per cent for Carpenter's.

DISCUSSION

It has not been the sole purpose of these studies to develop a bacteriologic holding medium superior to the many reported in the literature. The need of the Army Medical General Laboratory, an installation analogous to a state health laboratory, is for a medium which will maintain viability for 24 hours before proper incubation, will permit ease of storage and shipment, and will lend itself to compact enclosure in a vessel such as a dessicator or other CO_2 jar. The 406th agar and Carpenter's II agar or both encased in a screw cap 2 ounce bottle apparently satisfies this need admirably. The screw cap medicine bottle allows for sufficient streaking surface, provides a tight sealing of the bottle during the holding period, which permits contaminating flora to provide a reduced O_2 tension and also permits the free egress of CO_2 in the dessicator when the cap is slightly loosened during incubation. The bottle solves the problem of soaked cotton plugs and serves to retain moisture. In this connection, impaired visibility due to steaming at times makes the picking of colonies difficult. This has been obviated by removing the film of moisture through the use of sterile absorbent cotton applicators.

The sturdiness of the bottle container permits large numbers to be shipped in ordinary cardboard containers from field installations, where meticulous handling is not always possible. The bottled solid agar has several advantages over tubed broth. It prevents dilution of urethral exudate to the point where lightly seeded specimens may fail to grow on transfer.

TABLE 2

Recovery of Neisseria gonorrhoeae from Two Holding Media

1949, 100 Cases

Overall Positivity (all media)	*Positive Plate Cultures, 406th Plates, Medium Number 3*		*Medium Number 3 (406th Medium)*		*Medium Number 4 (Carpenter's)*	
			Bottles, Positive	*% Recovery of + Cases*	*Bottles, Positive*	*% Recovery of + Cases*
81%	81	81%	51	63%	50	62%

TABLE 3

Reference Facility: Cultural Study of Two Solid Media as "Holding" Agent and Growth 24 Hours

1950, 100 Cases

	All Cases		% Recovery in Positive Cases	No. Growth in 24 Hours	% Growth in 24 Hours
	No. Positive	% Positive			
Plates at 37° C.					
Total positive plates	72	72	—	—	—
Medium No. 3 (406th plates)	71	71	98	42	59.2
Medium No. 4 (Carpenter's plates)	71	71	98	40	56.5
Bottles: immediate incubation—37° C.					
Total positive bottles	72	72	100	—	
Medium No. 3 (406th bottles)	68	68	94.5	60	87.8
Medium No. 4 (Carpenter's bottles)	66	66	91.5	57	86.1
Bottles held at R° 24 hours					
Total R° positive bottles	61	61	85	—	
Medium No. 4 (406th bottles)	54	54	75	28	51.6
Medium No. 4 (Carpenter's bottles)	51	51	71	22	43

The chore of streaking from broth to plate with attendant possible contamination is eliminated. Moisture is present and evaporation is held to a minimum by the screw cap. This is sufficient to provide the one favorable feature of the liquid medium. However, evidence seems to be accumulating that despite many nutrients, loss of viability occurs less often after a sojourn on solid media than in a liquid transport vehicle.[3]

SUMMARY

1. A 2 ounce prescription-type screw capped bottle is a practical and desirable receptacle for gonococcal holding media, affording excellent recovery in comparison to that obtained on standard Petri dishes.

2. A modified McLeod's Medium containing blood and yeast extract gives 75 per cent recovery after 24 hours' delay in incubation.

3. Bottled media appear to offer the most practical method for handling referred cultures initially prepared in those field installations which permit only cursory streaking and dispatch through mail or other means of shipment.

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A Staff Development Program in Human Relationships for Venereal Disease Control Workers

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IN their day to day endeavors, venereal disease control workers meet many tests of their knowledge and skill in human relationships. Much of the success of a control program depends upon (1) the relationship the worker maintains with patients, and (2) an effective team relationship among the professions represented in public health. To assist the public health workers in a metropolitan venereal disease control program to work more effectively through the application of greater understanding of human personality, staff members of a psychiatric service attached to a venereal disease division of a public health department have offered staff development courses.

This psychiatric service had been operating for a period of nearly six years, chiefly as a research and treatment resource for promiscuous and potentially promiscuous men and women. Patients with severe emotional reactions to the possibility of venereal disease, and a limited number of patients where differential diagnosis of neuropsychiatric conditions was required, were also seen during the more recent years of operation.

Informal education in the principles of mental hygiene had been a by-product of the coöperative work of public health nurses and doctors with the psychiatric service staff. However, it was not until September, 1948, that a planned course aimed at staff development was offered. Since that time other courses have been given and, in addition, opportunities offered for individual members of the professional staff of the Division of Venereal Diseases to observe the operation of the psychiatric team through attendance at case conferences. It is these efforts in the direction of staff development which will be described here.

To a considerable degree the success of public health workers depends upon skillful interviews. The epidemiologist, both in the field and in the clinic, the physician, and the public health nurse responsible for patient education—all find their work largely dependent upon a successful use of interpersonal relationships in interviews with patients. The worker with facility for stimulating the patient's interest in doing something constructive for himself, with skill in avoiding and handling the resistances which arise, finds himself with fewer problems in carrying out his work assignments. In this way, as he performs his job with the desired results, he may also be contributing to the improved mental hygiene of the patient. The worker's understanding of human behavior and his awareness of his personal reactions, along with the control of these reactions, may transfer a potentially destructive experience into a constructive one for the patient. As the worker grows in his understanding of the patient, he gains ability in easing the tension of inter-

viewing situations. As he recognizes the symptomatic nature of difficult behavior, his feeling of personal involvement diminishes. He is better able to feel empathy without overidentification; he becomes more tolerant of the patient's limitations and of his own as well.

A review of the literature reveals a number of recent projects designed to bring mental hygiene concepts to public health workers. In general, there has been a similarity of objectives, with various methods and techniques employed for teaching, under a variety of auspices. Instructional methods utilized in the projects reviewed included lectures, group discussion, case presentation, supervised clinical experience, psychodrama, and visits to operating agencies.

In planning a staff development program for a division of venereal diseases, the needs of a diversified group required consideration. The staff represented such varied fields as medicine, public health nursing, staff nursing, public health education, bacteriology, and statistics, and included both supervisors and practitioners. Within each group there was a wide difference in experience, background, and familiarity with mental hygiene concepts. After consideration, it was concluded that all members of the professional staff would be invited to participate in a group on a voluntary basis. A projected plan which would have included opportunity for individual-supervised experience in application of the concepts in daily work failed to materialize because funds could not be secured.

In approaching the teaching of mental hygiene, any instructor is faced with the fact that only a small part of what he wants to teach is factual. Chiefly he finds himself concerned with modification of attitudes and he knows that with such emotionally charged materials this is going to present problems and create resistances. His task, then, is to help the members of the group absorb desirable attitudes, in so far as their attitudes need modification, and to avoid fixation of resistances. He will need to observe the tempo of the group and proceed in terms of the group's readiness. He will need to select from a vast quantity of data what is most helpful to the group with which he is working.

The report which follows covers four projects for the professional workers and one for other employees which were offered as a staff development program.

THE PROFESSIONAL STAFF

The staff development program was initiated by a lecture course on the psychology of human behavior offered by the psychiatrist. This was followed after a period of three months by an informal seminar on interviewing, conducted by the psychiatric social worker. Nine months later, a course on psychiatric principles in clinic practice was conducted as an informal seminar. Meanwhile, in April, 1949, an invitation had been extended to staff members of the city clinic to attend the weekly case conferences of the psychiatric service, one at a time, for a period of two months each. Later, all professional staff members of the Division of Venereal Diseases were included.

Essentially all the professional staff members were permitted to attend the courses, which were offered as a part of the working day;* however, attendance was optional. The seminar on interviewing was limited to 10. The size of the group varied with content and type of course. Over 85 per cent of the full-time staff of the division participated in one or more courses.

As a result of their practical experience with problems in case situations, most of the staff approached the courses with interest and a readiness to accept

* A few employees who were not scheduled to work during the hour the classes were held attended on their own time.

help in so far as they had found their knowledge and skills inadequate to cope with the problems. The majority had not, however, anticipated the need for change in attitudes but rather had hoped for a description of tactics which would simplify handling of problems. On the other hand, the Psychiatric Service staff saw the major purpose of the courses as being the modification of attitudes, with special emphasis on growth of patient-centered attitudes in a medical setting.

1. *Course on Psychology of Human Behavior*—The purpose of this course was to provide factual information in such a way as to establish general understanding of the concepts used and to provide an exposure of the total group to some common experiences as a basis for further work. This course was presented by the lecture method in a series of one hour periods at weekly intervals. Ten of the 12 lectures were offered by the psychiatrist, one each by the psychiatric social worker and the psychologist. Twenty-three members of the staff, including 10 public health nurses, 3 registered nurses, 3 physicians, 3 public health investigators, the bacteriologist, the statistician, the health educator, and the U. S. Public Health Service representative, attended.

An attempt was made to present material in such a way as to provide an introduction to understanding of the dynamics of personality development. For the most part, this material was psychoanalytically oriented. However, to give a broader view, discussion of the contributions of academic psychologists and sociologists was included.

The course was introduced with material on infancy and childhood aimed at providing an opportunity to relate the present emotional and behavior difficulties of the adult patients to their developmental background. Some guides were offered for the evaluation of emotional maturity. Consideration of the relationship of nurses and doctors to their patients was concerned chiefly with understanding emotional aspects of the role they play as professional people. Recognition of feelings underlying patients' difficulties was stressed. The process of transference was touched upon. The staff members were encouraged to adjust their goals flexibly in terms of the limitations of the patient. The concept of intrapsychic conflict and the defense mechanisms employed against conflict were emphasized. The experience of the Psychiatric Service in studying and treating habitually promiscuous young men and women was drawn upon to illustrate the conflicts, inadequacies, or disorganization within the personality which resulted in promiscuous sexual behavior. The neuroses, including psychosomatic reactions and the psychoses, were considered briefly, with comments about prevention and treatment. The psychiatric social worker presented broad considerations of society and culture with reference to the individual. The psychologist's lecture provided an opportunity to acquaint the group with the projective method of modern psychology and the tests in current use.

2. *Seminar on Interviewing*—This seminar provided an opportunity for developing skill in interviewing through discussion, centered around actual interviews of the participants in the course. The psychiatric social worker, who conducted the seminar, presented an informal lecture with group discussion for approximately one-half hour of each of the one and a half-hour sessions. Ten sessions were held, with four public health nurses and one physician participating. A resumé of the material brought out in each session was distributed at the beginning of the next session.

The sessions were conducted in an informal fashion, with ample opportunity for free exchange of ideas. Members

of the group were encouraged to present suggestions and bring up questions for discussion. In general, they approached the use of their own recorded interviews with anxiety, but as familiarity with the method grew, considerable spontaneity was displayed. The contributions from the members of the group varied both qualitatively and quantitatively.

As the group analyzed individual interviews, such factors as what happened and why, the elements of knowledge and skill which entered into the interview or could have been used, and evaluation of the effectiveness of the interview were considered.

It was concluded in the initial session that interviews in public health are concerned with helping the individual to a more satisfactory life experience, which includes both physical and mental health. Among the general principles repeatedly referred to were the need for respect for the individual as a human being, privacy of the interview and confidential treatment of the interviewing material, permissiveness with reference to feeling, and recognition of the patient's right to self-determination. Throughout, the emphasis was on interpersonal relationships. Such matters as clarity with regard to the purpose of the interviews, factors within the patient and his situation, factors within the interviewer, and authority became the subject for detailed discussion. In addition, practical techniques were pointed out with reference to individual interviews.

3. *Course on Psychiatric Principles in Clinic Practice*—The course was planned to permit more detailed discussion of problem situations met with in a venereal disease program than had been possible in the first course. This type of course had been requested by some who attended the earlier course. Twelve weekly sessions were conducted by the psychiatrist. A total of 18 staff members of the division participated, including 10 public health nurses, 2 registered nurses, 2 U. S. Public Health Service representatives, 1 physician, 1 investigator, the bacteriologist, and the statistician.

In addition to introductory lecture material, cases offered by members of the group and by the leader were utilized for discussion of dynamics and handling. The leader's activity was inversely related to the degree of spontaneity of the discussion by the group. "Obsessions and Delusions about Venereal Disease" was selected by the leader as the first topic because of the frequency with which difficult problems in this area presented themselves. The meaning of the symptoms in terms of unconscious conflicts was discussed. The practical difficulties from a medical standpoint of eliminating the possibility of the presence of venereal disease was considered.

The next topic, homosexuality, was discussed in such a way as to bring out the passivity, immaturity, and anxiety underlying the facade of either casual friendliness or aloofness presented by the patient in the interviewing situation.

In considering the problems presented by patients who failed to complete medical treatment, discussion centered around distinguishing disguised resistances to the treatment from reality difficulties impeding compliance with the treatment regime. How the public health worker feels about the patient was emphasized in considering the handling of resistance, which was recognized as being one of the most difficult problems the public health workers have to face. Specifically, the handling of the belligerent patient and the potentially belligerent patient, including the paranoid patient, was discussed in detail. In the two sessions devoted to motivation, it was recognized that in order to motivate the patient, it is necessary to understand his individual human needs. To conclude the course, the discussion of emotional factors in relationships with

patients was carried over to working relationships between members of the staff.

4. *Attendance at Psychiatric Service Case Conferences*—In the more detailed discussion of the individual cases which was possible in these conferences, the visiting staff member had the opportunity to follow what happens in case work and psychotherapy. The participation of the visitor was aimed at improving his or her functioning in his assigned job. Occasionally the visitor was able to contribute to the discussion because of having worked with a particular patient whose case was being discussed. He was encouraged to ask questions about any points brought up by the psychiatric team members, whether for clarification or for further information. This informal meeting with the psychiatric team provided an opportunity to acquire understanding and to observe attitudes toward the problems discussed. This would make possible (1) a better selection of cases for referral to the Psychiatric Service, and (2) future application of mental health principles in daily work.

DISCUSSION

In such a program as that described, since the material to be taught is emotionally charged, each individual responds in the light of his previous experiences and attitudes. It was found, as would be expected, that where the material touched upon subjects which were related to the personal conflicts of the class participants, resistances were greater and ambivalence (two way feelings) was revealed both in class participation and in day to day work. The problem became one of selecting for discussion the crucial attitudes of the staff workers in their professional relationships with patients and of circumventing as far as possible resistances which might arise out of individual conflicts having less significance to their relationships with patients. Increasing understanding of individual differences among patients appeared to be of major importance in promoting change of attitude. Attitudes toward venereal diseases, toward self-determination of patients, toward use of authority, and toward themselves and their professions received major emphasis. Success in changing attitudes appeared to be dependent upon the degree of tact with which new ideas were presented and the feeling of acceptance which was conveyed to the individual who was struggling with problems in these areas. The group's response to the individual's problem proved to be of great significance in helping, or in reinforcing, resistance. Sequence and timing of the presentation of topics for discussion was of considerable importance.

Experience with the lecture method in the first course led to the conclusion that other methods should be experimented with. The method provided little opportunity for interchange and exploration; there was little chance for growth through emotional experience. On the other hand, it was concluded that the factual material relating to the development of personality was valuable in providing understanding of the background of present symptomatic behavior and, as a result, greater acceptance of individuals showing such behavior.

Discussion methods, with informal presentation of subject matter for discussion, proved the more popular with the group participants as well as providing more opportunity for development along the lines previously indicated. The value to the group appeared to be in direct relationship to their participation. In so far as the individuals from the various professions and within the professional groups had widely varied training and experience, problems arose with reference to understanding of concepts, attitudes toward professional roles and toward other pro-

fessions. However, since one of the goals of the staff development program was a more effective coöperative relationship among the various professions represented, in the interest of patients, the advantages of including all the professional groups far outweighed the disadvantages occasioned by these problems.

Evaluation of the results of teaching mental hygiene material is extremely difficult. In the situation described it was possible to make some general comparisons of attitudes before and after the series of courses. Attitudes revealed regarding work with patients had improved, as evidenced by verbalizations of the staff members and by attitudes of patients toward the clinic and individual staff members. Use of consultation with members of the Psychiatric Service staff had increased. There were, however, remaining evidences of the need for work toward change in long accepted attitudes which emphasize the disease rather than the patient and the use of authority as against understanding.

In any plan for staff development certain administrative problems present themselves. How much time can profitably be devoted to this program? What proportion of the staff can be released at any given time for study? What is the optimum size for a class utilizing a given method? Staff development must be a continuous process, both because of changes in personnel and because of the need of the permanent staff for stimulation of their development. Of course, methods other than those described here may be utilized as part or all of a staff development program.

NONPROFESSIONAL EMPLOYEES

Unlike the staff development courses for the professional staff, which were planned primarily by the Psychiatric Service staff, the seminar for the nonprofessional employees was planned by a standing committee of representatives from all groups employed in the clinic. They selected the topic, "Human Relationships—Working with Patients and with One Another," and requested the psychiatric social worker to conduct six one-hour sessions. Two sessions on the work of specialized personnel in the Division of Venereal Diseases, given by such specialized personnel, concluded the series. Personnel from the Central Office of the Division were invited to join with the clinic group, and 4 members of the clerical staff attended. Those participating included 6 typists, 4 stenographers, 4 clerks, 2 orderlies, and 2 porters. This group represented approximately 80 per cent of the nonprofessional staff.

The sessions were conducted as informal seminars, with group discussion as the primary means of developing ideas. At the conclusion of the sessions, the group decided upon certain matters which they wished brought to the staff committee in the interest of improved relationships.

The first four sessions were devoted to a consideration of the relationships with patients. The group was asked to consider together such things as how the new patient feels upon approaching the clinic. Emphasis was placed upon feeling, particularly upon the effect of hidden emotions. The role of the nonprofessional worker as the representative of the professional staff was given considerable attention. The importance of providing as neutral an atmosphere as possible preparatory to the patient's interviews with the admitting nurse, physician, and public health nurse was stressed. The group discussed recognition of one's limitations so that help can be secured early from the professional staff in complicated situations.

Those attending were encouraged to consider their own feelings about patients so that they might be able to control better any expression of the adverse feelings they might have and

avoid personal involvement in the patient's problem.

As an introduction to the series of meetings, the group had been requested to consider their expectations from a job and the expectations of them on the job. In the two sessions devoted to staff relationships, the group participated even more actively in discussing the problems confronting them. The leader followed through on any points which gave an opportunity to illustrate the role of feelings in their relationships.

Such questions as, "How do you feel when you have 'pulled a boner'?" "What about covering the mistakes of others?" and "How do you feel about being corrected?" provoked considerable interest. Opportunity was provided for frank discussion of feelings about supervision and their own relationships with supervisors.

DISCUSSION

The effect in improved morale as a result of a staff development program for nonprofessional employees is perhaps of greatest importance. The fact that time was allowed for such a course counteracted the considerable adverse feeling which had been present with reference to the privileges offered the professional staff. That the staff committee, including 2 representatives of the nonprofessional staff, planned this course and selected the leader made its value much greater to the participants.

As with the professional group, the material dealt with was emotionally charged. The relatively free discussion permitted discharge of feeling, sharing of problems, and growth in the direction of planful handling of problems. Recognition of the emotional demands made upon anyone working with patients helped those working directly with patients to assume a more objective attitude and to be more discriminating in their reactions. This experience suggested that factual information was of minor importance. Of greatest value was consideration by the group of their relationships to the various aspects of their jobs.

SUMMARY

A staff development program in human relationships offered to the staff of a venereal disease division in a metropolitan area over a two year period has been reviewed. Three courses for the professional staff, opportunities for professional staff members to attend psychiatric team staff meetings, and one course for the nonprofessional staff have been described. Teaching in this area is primarily a matter of modification of attitudes and evokes emotional responses on the part of the participants. The discussion method proved to be most valuable. Evaluation of the results of such a program gives indication of improved attitudes toward patients and greater use of consultation with members of the psychiatric staff. Staff development, however, needs to be a continuing process for both new and permanent staff members.

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Mental Health in a Chest Clinic

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THE interpretation of a chest x-ray film, as a rule, means one objective thing to the chest physician: The film is either apparently normal, or it shows some evidence of an existing pathological condition. In gaining this impression, no particular emotional experience is involved. Usually the reader of the film does not even know the person whose chest has been x-rayed.

As a result, often enough a so-called "negative" film loses its significance for the examiner, who, of course, feels that the main point of his studying the films is to find the abnormal ones. The same physician is often puzzled by the response of the patient to whom he communicates his impression. He is sometimes disappointed to see that his information of normal findings has no effect at all upon the patient's chest symptoms and, on the other hand, he is set back by the casualness with which a patient receives the news of a cavity in his lungs.

It is rather difficult to strike a happy balance between the monotony of "negative" films and the various quite positive motivations leading to the chest examination; between the factual precision of a laboratory report and the emotional turbulence caused by its communication to the respective patient; between the roentgenological quietude of an old calcification and the patient's disquietude, caused by the sudden awareness of a past illness; and vice versa, between the alarming discovery of a giant cavity and the mild and detached curiosity of the one who harbors it in his chest.

The question, in short, is—how far can, or should, a chest physician in the health department go in interpreting pathological findings to the patient and securing proper follow-up and what efforts, if any, should be made in behalf of those whose chest film has been found normal.

Two types of communication are commonly used, verbal information and, particularly where a large number of persons is involved, the so-called "routine" letter. It is unfortunately often forgotten that the letter is to be worded primarily for the benefit of the recipient, not of the writer. As a result, information thus transmitted, while factually correct, often causes considerable distress.

Many a patient stays out of clinics simply because the "invitation" he receives is—with the best of intentions, of course—composed in a style which makes him believe that the visit to the health department might easily be the last one he is going to make on this earth. Particularly in letters concerning suspected heart disease, any reference to the so often encountered "slight abnormality" has surely been responsible for raising rather than lowering the blood pressure of some readers.

Certainly, there are cases, for example those involving suspicion of a malignancy, where prompt follow-up is a life-saving measure. But an individual letter or a home visit would certainly seem better than any routine send-out. Technical terms should be avoided altogether, as none of them are innocent enough not to cause occasional distress. It is diffi-

cult to reach a great variety of people with one uniform message. There comes to mind the telephone call of one man who was greatly alarmed at being informed that his film was "technically unsatisfactory." It took some efforts to convince him that this was the x-ray machine's fault, not his.

So far as verbal communication between physician and patient goes, it is obvious that not everybody who wishes a chest x-ray picture can be, or needs to be, interviewed. Proper selection of persons, taking into consideration the reason for their wishing a chest examination, can provide valuable personal contact between the chest physician and practically a cross-section of the population.

A routine procedure may look about this way: Persons in whose film a suspicious lesion was found are invited to look at their film, and efforts are made to demonstrate the lesion to them. The procedures leading to a diagnosis are explained in detail and the various possibilities of outcome enumerated. The time at which the results of various examinations are to be expected is specified. It is stated in cautious and not too authoritative terms if in the opinion of the examiner the patient should quit work or observe bed rest even pending return of examination results. On the other hand, it is stated in far more definite terms if in the opinion of the examiner it is safe for the patient to continue his routine way of life in the intervening period. If danger of communicability exists, this is pointed out, with careful avoidance of exaggerating the existing danger. Again, if such spread of infection is unlikely, the patient is assured in a more definite manner.

Another group of persons includes those whose roentgenological chest findings are apparently entirely normal but who mention a long list of complaints at the time of their registration. In those cases efforts are made, often through referral to private physicians or the county hospital clinics, to rule out other organic etiology of listed symptoms before a discussion is entered into pointing to the possibility that the complaints, real as they may be, might not rest on an organic base.

Again, others have no chest complaints and merely desire a routine film, either in connection with employment or in some other areas where the endeavors of health education begin to show results. Thus, the health department chest physician may have the opportunity to interview persons before marriage or during pregnancy; he may come into contact with such occupational groups as food handlers, miners; he may be consulted by applicants for a boarding home license, by prospective adoptive parents, or by just anybody who wishes to combine the occasion of having a chest film taken with the opportunity to "see a doctor." For many of these persons it would be at least a welcome surprise, if not more, to find the physician ready to discuss with them matters of emotional significance.

Finally, there is the considerable group of people who "have something on their chest" and so they want to see a chest physician about it. It is very interesting to note the remarkable discrepancy between complaints and objective findings in this group. At the time of registration, the patient is asked whether he has noticed any symptoms of illness about himself. For patients whose chest film later shows obvious pathology, many of whom later concede that they were perfectly well aware of their symptoms, it is quite common to list no complaints at all before the film is taken, or even to deny expressly and spontaneously any exposure to tuberculosis. Later, when their pathology is discussed with them, it takes at times some persuasion to convince these patients that their negation of symp-

toms, if they had any, is not being held against them and that in their state of apprehension it is quite natural for them to look away from their symptoms rather than to emphasize them.

On the other hand, there is a considerable number of persons listing a long series of complaints in cases where the chest film later turns out to be completely normal. Efforts are being made to assure this group that there seems to be no evidence of any chest disease and at the same time to invite them to attend the chest clinic with regard to the complaints they noted at the time of registration.

A brief description of the following cases may illustrate some of the situations which occur more frequently:

1. A young woman who had come for a routine examination was found to suffer from minimal tuberculosis. This came as quite a shock to her since she had apparently been completely asymptomatic. The situation was further complicated by the presence of a small baby in the home, about whose possible exposure the mother felt extremely apprehensive. The husband, although he could hardly afford to stay away from work, promised that he would manage somehow to take care of the baby if his wife were to be hospitalized. This turned out to be impossible, as no bed happened to be available in the county hospital at the time. No money was available for private care. The family was referred to the welfare department, where on technical grounds they were found ineligible. The next possibility discussed with them was that they could move to another state and live with the patient's mother, who could take care of the baby. Their response made it abundantly clear that they felt very much ill at ease at the thought of "going back to mother." In the course of events they had been referred to and from a great many agencies without apparent benefit and were reluctant to go through more of the same process.

Under the circumstances, the following solution was suggested and accepted: The patient went to bed at home and observed isolation procedures under supervision of a public health nurse. The husband found additional work, which made it possible to hire someone to take care of the baby in his absence. In this way the patient had at least formal command over her domestic reign, and at the same time was in proximity to, though not in contact with, her baby and her husband. X-ray and sputum examinations were made at the health department in regular intervals, and in this case the results were communicated to the patient not by mail but by telephone, in an effort to approximate the impression of personalized care. The result of strict bed rest alone, fortunately, was favorable. The alternative had been explained to the patient in advance.

It may be argued that this is no more than a routine case which was aided by some simple social casework in addition to the customary service rendered by the health department. That is exactly what was meant to be demonstrated—that such additional service, where it cannot be obtained otherwise, can be offered through the chest clinic and may in such cases materially contribute to the happiness of a patient, who needs to be told more than just that tubercle bacilli were found in the sputum.

2. A patient who came for her premarital chest examination turned out to be a case of arrested tuberculosis. She had been released from sanatorium care three years before, had been under medical supervision, showed no evidence of active pathology, and had repeatedly been assured by her physician that she could return to normal life without any danger to herself or any of her contacts. She was living with her parents. In

talking about her health history she made repeated reference to the fact that she was not sure at all that it was safe for her to marry and was obviously trying to solicit medical advice to postpone her marriage. As far as could be ascertained, there was true affection between the two prospective partners, who had known each other for some years, and eventual marriage had been agreed upon long ago. There seemed to be no reason to believe that her sentiment toward him had changed. On the other hand, she could easily be swayed to admit that her fear of reactivation of her tuberculosis seemed groundless in her own mind, that she had been under competent medical supervision and actually believed herself cured.

In going into the details of her early history, an extremely deep dependence on her father emerged from her story, a connection which apparently she was not quite ready to sever. Although little direct interpretation was given during the interview, she interrupted herself by saying with some amazement that she had never thought of it that way. It was suggested that she leave the marriage health certificate in the health department and let those thoughts go through her mind. Then, if she still felt like it, she should return for her certificate. After some time, she returned happily with her boy friend and collected her certificate. Actually, all that was done was to show enough interest in this patient's life to stimulate her into talking things over with herself; but that apparently was what she needed, and not merely another assurance that her tuberculosis was classified as inactive.

3. Not even the occasional chest examination of a food handler is necessarily a dull routine. A middle-aged lady who does kitchen work in a hospital showed no signs or symptoms of illness, but poured out a flood of complaints about the way nurses and other hospital employees acted toward her. In an attempt to define specific examples, it soon came out that actually she had very little contact with nurses or the clerical staff and that she was unable to quote any overt act of unfriendly behavior toward her. She was not at all the paranoid type, but gradually withdrew her accusations and felt somewhat embarrassed. Some friendly interrogation brought out the fact that in her youth she had always aspired to becoming a nurse herself, which ambition had been thwarted through the sacrifices which she was forced to make in behalf of other members of her family. But she had always worked in hospitals in various minor positions, finally as kitchen worker. At the end of the discussion, she said spontaneously that she felt she could understand better why she felt hostile toward other hospital employees, particularly nurses. It is doubtful that her attitude was essentially changed, but she had for the first time in many years sat across from a sympathetic listener and she was grateful for it. That her chest was healthy she had known before.

4. An elderly lady came to the clinic to have her chest examined in connection with a boarding home examination. Findings were normal. She accepted the news with eagerness but stated that having a healthy chest still would not help her with her constipation, from which she had been suffering for many years. Following her husband's death some 15 years before, she had been living with her sister, who was single and did most of the housework. When in the course of the conversation she was asked what kind of children she would like to board, she referred modestly to her sister's and her own nice furniture and added, "Of course, we would like to have nice children who know how to appreciate a nice home."

When it was mentioned that sometimes children who are placed in boarding homes come from a turbulent home

environment and occasionally show aggressive tendencies, she expressed hope that discretion would be exercised in choosing "the right kind" for her. She pointed to her small but secure income from a pension and denied, apparently quite sincerely, any financial interest. Her main motive in applying for a boarding home license was, as she put it, that "Things have gotten pretty lonely at home, and my sister and I thought that the presence of a child might cheer us up and at the same time we would do some good for a poor child." After a short while it seemed evident that these two ladies wanted to have a "nice" child around the house to fill some of the prevailing emptiness. But it was highly doubtful that they would be able to offer in return a real home to an otherwise homeless child. In view of normal physical findings, there was of course no reason to reject the application through the chest clinic. However, the case worker in charge in the social service department was approached and the impression gained during the interview was communicated to her for comparison with her own findings.

5. A married couple entered the chest clinic to be examined, to see whether they were "healthy enough to adopt a child." They had no child of their own and a short history revealed that repeated medical examinations had not been able to reveal the cause of sterility. The husband said that it still might be his "fault" and his wife, in an effort to comfort him, questioned whether she was "good enough" to bring up a child if she was not "good enough" to produce one herself. They thought that an examination of their chests ("everything else has been checked often enough") might help them to decide.

There seemed to be no question about the genuine warmth of those two people and their intense desire to adopt a child "if it was all right." It was felt worthwhile to take time out from routine work to discuss with this couple the fact (obvious only to an outsider) that normal chest findings, important as they were, could of course not be considered a salient point in their decision to adopt a baby. An attempt was made to impress upon them that their inability to produce offspring would not make them inadequate parents. The criteria of a "good home" were analyzed and the couple left the office with the feeling that they had an abundance of what many other parents could not offer to their "own" children. Their application was filed soon thereafter.

6. A young woman listed on her registration card the following symptoms: Cough, loss of weight, fatigue, pain in chest, muscle ache, anemia, nausea, vomiting. Apparently having read all about tuberculosis, she demanded a chest film, sputum examination, and a sedimentation rate. All these examinations were made and the findings were normal. Subsequently, this patient was invited to attend the clinic for an interview, mainly in order to discuss her symptoms. For the sake of honesty, it should be freely admitted here that the examiner was prejudiced in that he expected a high-strung hysterical type of patient to storm in and bewail her fate in polysyllabic terms. If anything, the opposite was true. A quiet, almost timid, modestly dressed woman entered the room, sat down only after repeated invitations, and needed considerable encouragement to tell her unhappy story:

She was a college graduate, married to a pathological drinker. In an effort to maintain their little daughter and to keep their household together, she was now working as a waitress. Lately things had gone from bad to worse. Her husband, a skilled worker when he was sober, was gradually deteriorating. He still made futile efforts to quit drinking. Various sedatives had been prescribed for him by physicians he had consulted.

This woman was at the end of her rope. She was sick and tired of the life she was leading, and sick and tired was exactly the way she felt. Tuberculosis seemed to be a likely explanation, and when she came down with a simple cold, surely she had all the symptoms she had ever heard of. She was asked whether her husband might be ready to come up and discuss his situation. He did and presented the unfortunately so common psychiatric aspects of a chronic drinker who has lost his grip. After a prolonged conversation he was referred to Alcoholics Anonymous, and the examiner demonstrated his interest by calling up this organization and inquiring about the patient's progress.

It may be argued that even with a broad and liberal definition of "chest disease" such procedure can no longer be considered within the legitimate framework of the health department chest clinic. Perhaps not; but the fact remains that this woman came to the clinic primarily to find out about the cause of her symptoms. The cause was found; she acknowledged it; and temporarily, at least, she felt better.

7. A girl of high school age, long after any activity of her minimal tuberculous lesion had subsided, still confined herself to strict bed rest and followed rigid isolation technique at home, although she had repeatedly been assured that this was no longer necessary. With monotony, she emphasized her conviction that her tuberculosis was sure to be reactivated as soon as she allowed herself any greater freedom. She was certainly not of the lazy type, but on the contrary felt extremely uneasy at having to be physically cared for by her parents without doing anything for them in return. General reassurance and encouragement were given repeatedly but without any apparent success.

It took several interviews before a good relationship was established which made it possible to go somewhat deeper into this patient's problem. The story went like this: The girl, coming from a family with rather rigid conventional standards, a home where sex and everything that goes with it was irrevocably taboo, had had a one-time sexual experience with her boy friend, who at the time had not even been introduced to her parents. Soon after this, she developed her tuberculosis and was immediately convinced that this was just punishment for her misbehavior. And having done something which could not be undone and the effects of which, in her mind, would necessarily last forever, she felt impelled to continue the punishment inflicted upon her for an equal length of time, namely forever. As soon as she relaxed her severe self-punishment and attempted to get out of bed, or tried to remove from herself the stigma of impurity by abolishing her isolation technique, she became overwhelmed with guilt feelings. Needless to say, she had never dared to discuss this with anyone, hardly with herself. She was visibly shaken when telling her story, and although little direct interpretation was given, she gained a fair amount of insight.

This story has a really happy ending: Some months later she announced her intention to marry her boy friend, who in the meantime had found the approval of her parents. The demonstration of her recovery came as a dramatic event when one day, without knocking at the door, she slipped into the examiner's office flashing a big smile, dropped a flower on his desk, and ran off.

DISCUSSION

In evaluating this type of service in the chest clinic, certain advantages and disadvantages soon become obvious. The main advantage is that the service does not tend to be influenced by any of the three standard complaints of every health department: No money; no personnel; no equipment. The

money spent on such a program amounts to exactly nothing. Health department employees, including physicians, are on fixed salaries and their income does not change commensurately with the amount of mental health they practise.

So far as personnel is concerned, no additions are needed as long as the time spent on interviewing patients does not interfere with the routine work, which has to be kept up to date. Certainly no attempt would be made to treat patients who should be under specialized psychiatric care. But the average patient attending a chest clinic is not psychotic, and even cases of severe psychoneurosis are encountered only infrequently. These patients, as well as those suffering from any other mental disorder requiring prolonged and deep psychotherapy, should of course be referred for proper care. But this is obviously the exception rather than the rule. Normally, a patient with a chest disease, or with complaints pointing to a chest disease, is simply in distress because he has something in or on his chest which he would like to get rid of.

Concerning equipment, only one thing is indispensable: enough space for privacy. Obviously no successful interview can be conducted amidst clattering typewriters and ringing telephones, or in the presence of other persons who look either disinterested or amused. The interview should not be interrupted by the nurse's friendly but audible whisper that the next patient is now ready.

The limitations of this program are at least as obvious as its advantages. Quite clearly, the primary responsibility of a public health chest clinic is the recognition and isolation of communicable chest diseases. It would indeed be a sad experience if in his intent to learn "the story behind it," the examiner failed to see a questionable lesion in a chest film. It would be equally unforgivable if his time spent on administrative procedures necessary for the control of tuberculosis were curtailed by the time spent in listening to "human interest stories." The time factor deserves most serious consideration. However, effort should be made to accommodate each patient who asks "to see the doctor," regardless of the nature of his complaints.

In summary, then, it may be said: The first duty of a tuberculosis control officer is indisputably the control of tuberculosis within the area of his medical jurisdiction.

However, as chest physician, he need not consider this his only duty. He should be constantly aware of the fact that a lung is not an isolated organ but is part of a human being whose depth is not always penetrable by x-rays alone.

SUMMARY

In communicating his findings to patients, a chest physician has to evaluate the emotional significance of his information. Often enough he is consulted by patients who have something on, rather than in, their chests. A few cases are quoted in order to illustrate how a chest clinic may be used for screening of emotional attitudes, and how simple casework can be included in routine clinic procedures to the apparent benefit of the patient.

Family Health in Tomorrow's Community

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IT is only occasionally that health people have the opportunity to see their problems from a broad total community point of view. In spite of extensive use of such terms as "coöperation," and "coördination," it is not often that competent workers among the community's major social services actually undertake extensive investigation and study together. Such a project, involving a single schedule for collecting data based on a joint classification system, permitting extensive correlations and involving most of the public and private social agencies, seems worth reporting.

This project was part of a larger research undertaking, underwritten by the Grant Foundation and carried out by the staff of Community Research Associates, Inc., with a group of consultants * from the fields of health, dependency, maladjustment, and recreation. The comprehensive statistical study was made in St. Paul, Minn., conducted jointly with the Social Planning and Research Council of that city. With the coöperation of 108 public and private community agencies in the fields of health, dependency, maladjustment, and recreation, schedules were made for each of the families served by each of these agencies during the month of November, 1948. Cross-tabulations brought to light a mountain of data about the use of the services in this city, including reliable figures on the numbers of families being served simultaneously by different agencies working in the same and in different fields of service.

The purpose of the St. Paul project was to make a systematic effort to get as complete facts as possible about community problems and the appropriateness of the services provided to meet those problems, in a typical urban American community. No previous effort of this kind has been made, and it came none too soon. The annual nation-wide expenditure for public and private community services is now about $13 billion, and despite the popular notion that federal and state financing have "taken over," communities themselves still have a good grip on the purse strings as well as the responsibility for planning. For example, St. Paul's annual cost for community services is about $13 million. Over half of this is local voluntary money, and over half the tax money comes from city-county taxes. Less than $1 million, mainly money for public assistance, comes from federal sources.

An important assumption of the St. Paul project was that the family group is "the magnet which draws together the many specialized and separate agencies and services." Consequently, a a "family unit reporting system" was used, and in the end the data appeared to confirm the assumption by showing how problems of maladjustment, ill health, and dependency set up a vicious circle of disorganization in the same family units. One might say that, in

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this sense, the project attempted to begin an epidemiologic study of the characteristics of family life in relation to these human problems.

It will be noted that one of the four fields of service is referred to as "maladjustment." A word of elaboration is needed about the use of the term. Two types of evidence of "the inability of people to adjust successfully to the necessities of social living" were accepted for this classification: evidence of antisocial behavior, as recorded by the official judgments of society; and diagnostic evidence of mental deficiency, mental or emotional disorder, and social irresponsibility in primary obligations toward home, work, or school. Thus, the correctional agencies, the mental health agencies, and the casework agencies were, for purposes of the project, classified together as "adjustment services"—a new departure in health and welfare annals.

About 41,000 families, 40 per cent of the families of the city, were known to one or more agencies during that month of November, 1948. Seventeen per cent of these, 7 per cent of the families in the general population, were on relief or in the county home. Twenty-six per cent of the families studied, 10 per cent of the families in the community, were receiving services from agencies because of maladjustment of one or more members of the family, as defined above. Thirty-eight per cent of the study families, 15 per cent of St. Paul's families, were being served because of health problems. Forty-six per cent, 18 per cent of the community families, were participating in the programs of the public and private recreation agencies.

As can readily be seen, these figures indicate that some families had more than one kind of problem for which they were being serviced. Seventy-seven per cent of the "dependency" families also had problems of ill health or maladjustment. Fifty-six per cent of the "maladjustment" families were known to agencies in other fields. Thirty-eight per cent of the families with health problems also had other problems. Only the "recreation" families indicated slight need for service in other areas: 3 per cent of these were known to agencies in other fields of service.

The most dramatic evidence of this compounding of problems came with the discovery that a group of 6,600 families, about 6 per cent of St. Paul's families, were suffering from such a multiplicity of serious problems that they were absorbing 46 per cent of the community's organized health services, 55 per cent of its adjustment services, and 68 per cent of its dependency services. These were designated the "multiproblem families," becoming the living symbol of that source of social infection which exists in every community, absorbing a high proportion of the time and energy of skilled practitioners, and constantly frustrating community efforts in the direction of prevention.

Health problems loomed large in the total number of families known to St. Paul agencies—in themselves and in their relation to other family problems. During the month in which these figures were taken, 16,000 families were being served by the 12 public and 18 private health agencies of St. Paul. This was at a rate of 147 per 1,000 families in the community. In 49 per cent of the instances, services were being given because of chronic disease or chronic handicap. Tuberculosis, diseases of the heart and arteries, and arthritis were the big leaders on the chronic disease list. Orthopedic handicaps and hearing and speech defects received the greatest amount of service among other diagnoses. Appendicitis and respiratory diseases received the greatest amount of attention under "other diseases."

Forty-one per cent of these family members who were in ill health were between the ages of 20 and 64; 32 per

cent were under 20; and 22 per cent over 65. Fifty-five per cent of those suffering chronic handicaps were heads of families, as were 68 per cent of those with chronic diseases and 58 per cent of those suffering from other diseases.

Here in a nutshell we may see the first evidences of the important place of the health problem in the maladjustment-ill health-dependency syndrome, as well as its significance in the endeavor to preserve family functioning. Forty-seven per cent of the "maladjusted" families and 53 per cent of the dependent families had problems of ill health. Of the 6,600 families receiving financial assistance, only 4 per cent were dependent solely because of unemployment. On the other hand, 58 per cent were dependent because health problems or adjustment problems or both rendered the family incapable of sustaining and supporting itself. The data also showed quite clearly that the nightmare of our public welfare services, the ever-increasing residual caseload, cannot come to an end until steps are taken to cope with the problems of chronic illness and chronic handicap. This is the special spot where health and other problems converge to establish the need for prevention and control procedures which would reach into the heart of the community's families now suffering from a combination of human ills.

At the risk of oversimplifying an idea that was three years in the making, one might say that the thesis of the report of this project * is that since these problems are interrelated, why should the services not follow suit? Such an idea is in truth merely compounded of principle and expedient reality. Public health administrators, now hard pressed by new responsibilities under the provisions of the National Mental Health Act, the push for community guidance clinics, and the expanding school health program, may be especially interested in illustration from the field of maladjustment.

There is evidence that families of maladjusted individuals who come to the attention of any of the three systems in the field—corrections, mental health, and casework—are in high proportion the families whose members are known to the other two, that is, mental and emotional illness, crime, delinquency and antisocial behavior, and family incompetence and social irresponsibility tend to appear in constellation. And in a good many instances mental health, correctional, and casework agencies are simply working on different aspects of the same underlying problem.

There is evidence, too, that the various behavior disorders with which these systems deal react on each other in the family setting. It follows that failure on the part of one agency to check a disorder helps to swell the flow of cases toward terminal agencies such as the state correctional institutions and state mental health institutions and the residual load of the public welfare department. Thus, in principle it would seem that these three systems have a joint responsibility to design a local service pattern which will make best use of available resources in preventing and reducing this flow.

In practice, the need for joint thinking and planning would seem to be compelling. There is substantial agreement, for example, that the agencies in the three systems of the maladjustment field should have at their disposal some combination of psychiatric, psychological, and casework service, together with underpinning of medical services, to diagnose and treat the cases for which they are responsible. Public health officers, mental institutions, correctional authorities, and casework agencies are now competing for this personnel. However, the facts about the incidence of

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problems in these fields seen in relation to the cold facts regarding available personnel are something less than reassuring.

There were, at last report, 197 hospitals for the care of the mentally ill, having an aggregate patient population of about 600,000. In addition, about 200,000 mentally defective patients were being cared for in 93 state institutions and a number of private institutions. There were about 700 community mental hygiene clinics (according to the USPHS, about one-fifth of the number needed in our communities). National figures show that annually nearly a million and a half sentences are served in our jails, prisons and penitentiaries, juvenile detention institutions and juvenile training schools. The last available figures reported about 2,200 public and private agencies in the country for the care of children—600 foster care agencies and 1,600 institutions. In January, 1950, the Family Service Association of America reported over 200 member agencies and premember affiliates which, in communities of all sizes, were carrying the bulk of the family casework load.

At last report, also, it was estimated that there were in the country 4,000 qualified psychiatrists, 1,000 clinical psychologists, and 15,000 caseworkers who have completed a full two year course in professional schools of social work. Despite helpful measures like the provisions of the National Mental Health Act to expand training opportunities and facilities, education for these three crucially needed professions must remain a time consuming process.

The picture would be grim enough if these facts told the whole story. But there is ample evidence that in addition to the people whose serious problems have brought them to the attention of some official or voluntary organization, many others are badly in need of diagnosis and treatment. In St. Paul there were four times as many mental defectives known to local agencies as were being cared for by state institutions. There were twice as many patients in state institutions as those with *diagnosed* psychiatric disorders known to community agencies, it is true, but the casework and correctional agencies reported 5,000 persons with symptoms of disorder for whom there had been *no* psychiatric diagnosis.

Such facts as these open up many new lines of thought about the manner in which the precious personnel now available could be put to better use in dealing with community-wide problems of behavior disorder. In almost all communities, the structures of the correctional, mental health, casework, and public health agencies concerned with these problems are ill-designed for purposes of efficient planning and operational teamwork. In almost all communities, also, there are obvious places where structural changes, reorganization, and consolidation would improve the situation.

The consultants who carried out this project believe, however, that too much talk about structural reorganization is putting the cart before the horse. Much more important, they believe, are experimental undertakings of broad purpose and design, aimed at the community-wide prevention and control of certain of the important end results of behavior disorders and social maladjustment. They believe that there is now available enough knowledge and experience in the fields of public health, mental health, correction, and family casework to justify planned joint experimentation in carefully selected communities. Such projects should not only lay a foundation for sound operational relationship among the major agencies in these fields, but should also add to our present meager epidemiologic knowledge about the community-wide characteristics of these disorders.

Recently, members of Community Research Associates, Inc., working with representatives of these special fields in a western state, got into blueprint shape the plans for the kind of experimental undertaking to which this research project logically leads. Roughly speaking, the aim of the experiment would be to help preserve family capacity to cope with health and social hazards common to our communities. The method of attack would be through a program of prevention and control of such consequences of family disorganization as child neglect and delinquency, crime, and mental illness in young people; and at the same time, an attack on the deteriorating effects of chronic disease and physical handicap, which we now see as being a highly important contributing factor in family disorganization.

A matter of first essentiality here, of course, is joint planning by public health, public welfare, correctional, mental hygiene, casework, and other basic community services. This specific plan calls also for the active participation of the principal state departments concerned with these services in setting up and manning the experiment.

The key to the experiment, however, would be the adaptation of many procedures which the public health movement has so effectively developed in the community-wide control of physical disease. Since no such commonly accepted procedures for these various special fields now exist, they would have to be manufactured from scratch—procedures for identification, classification, and reporting; procedures which would be used alike by doctors, teachers, social workers, and others for early discovery of cases.

One of the most interesting features of this blueprint is the "family mental health center," equipped with top psychiatric, psychological, and family casework staff, whose job it would be to diagnose and consult on all types of mental, emotional, and behavior disorders in the light of the total family situation. Depending on other treatment resources available in the community, the personnel of the center would also treat certain of the cases. Plans allow, too, for the development of procedures to assure follow-up and continuity of treatment, with periodic and systematic evaluation of progress in each case and of the total undertaking.

An important source of case finding and referral would be a multiphasic screening unit which would be available to test individuals for fundamental physical, and perhaps psychiatric, disorders.

In many aspects of 20th century life we are synthesizing the gains made through the specializations developed in the 19th century. The public health movement itself is an agent of synthesis, bringing together scientific discovery and methods of practice from many specialized areas of health and medicine and converting them into a program of prevention, treatment, and control on a community-wide basis. Because of this, it is unique among the vast networks of health and welfare services which are brought to bear on the problems of our communities' families. The consultants who carried out this large-scale research project are, in effect, proposing experimentation with a kind of operational synthesis of specialized services to determine whether such an approach could be a genuine improvement on the time-honored but wasteful piecemeal approach to the compounding of problems within the family group. It is our belief that this analysis of the community-wide program in these four major fields of service in American communities today clearly shows the interrelatedness of the problems demanding service and the necessity that half-hearted attempts at coöperation and coördination should give way to genuine integration of services on a community-wide basis.

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GEORGE A. SILVER, M.D., M.P.H., F.A.P.H.A.,* AND ABRAHAM M. LILIENFELD, M.D., M.P.H.

District Health Officer, Eastern and Southern Health Districts, Baltimore City Health Department, and Department of Public Health Administration, Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md.

IN the development of urban health departments, the principle of decentralization—"neighborhood health centers"—has been casually accepted. In routine fashion, local planning has provided for health officers of urban health districts, tables of organization, and carefully vague limitations on autonomy. Most of the larger cities have now, on paper or in fact, divided the city into health districts, adopted an organizational plan for staffing these districts, and to a greater or lesser degree provided structures for district operations.

Philosophically, the stimulus for such programs, and the easy, unquestioning acceptance of the principle, probably stem from American tradition. We remember nostalgically the town meeting and the benefits that accrue from public administration close to the source of responsibility and sensitive to local needs. The great bugbear of political and economic life is centralization, the "curse of bigness," monopoly, and impersonal administration. In addition, it is felt that the job to be done, specifically health education in its many manifestations, depends on a homogeneous group. In 1915, in an address to a welfare conference, Adolph Meyer expressed this desire as follows:

> Can you see the ward or district organization? With a district building instead of a police station, with policemen as constructive workers rather than watchdogs of their beats, a district center with reasonably accurate records of the facts needed for orderly work; among the officers a district health officer, and a district school committee and a district improvement and recreation committee, a district tax committee, a district charity or civic work committee, a tangible expression of what the district stands for.[1]

The growth of health centers and the concomitant decentralization were reviewed by Hiscock.[2] The design and impetus were spontaneously developed in many places almost simultaneously. At the turn of the century, as an outgrowth of settlement house work, there resulted the formation and growth of various neighborhood facilities: visiting nursing services, milk stations, and tuberculosis clinics, all established by nonofficial agencies. Out of these beginnings there developed the plan to group together those various facilities into health centers. These became related to definite areas of the city and they formed the headquarters of the generalized nursing service working in that area.

Despite the fact that district administration is now generally accepted in

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cent were under 20; and 22 per cent over 65. Fifty-five per cent of those suffering chronic handicaps were heads of families, as were 68 per cent of those with chronic diseases and 58 per cent of those suffering from other diseases.

Here in a nutshell we may see the first evidences of the important place of the health problem in the maladjustment-ill health-dependency syndrome, as well as its significance in the endeavor to preserve family functioning. Forty-seven per cent of the "maladjusted" families and 53 per cent of the dependent families had problems of ill health. Of the 6,600 families receiving financial assistance, only 4 per cent were dependent solely because of unemployment. On the other hand, 58 per cent were dependent because health problems or adjustment problems or both rendered the family incapable of sustaining and supporting itself. The data also showed quite clearly that the nightmare of our public welfare services, the ever-increasing residual caseload, cannot come to an end until steps are taken to cope with the problems of chronic illness and chronic handicap. This is the special spot where health and other problems converge to establish the need for prevention and control procedures which would reach into the heart of the community's families now suffering from a combination of human ills.

At the risk of oversimplifying an idea that was three years in the making, one might say that the thesis of the report of this project * is that since these problems are interrelated, why should the services not follow suit? Such an idea is in truth merely compounded of principle and expedient reality. Public health administrators, now hard pressed by new responsibilities under the provisions of the National Mental Health Act, the push for community guidance clinics, and the expanding school health program, may be especially interested in illustration from the field of maladjustment.

There is evidence that families of maladjusted individuals who come to the attention of any of the three systems in the field—corrections, mental health, and casework—are in high proportion the families whose members are known to the other two, that is, mental and emotional illness, crime, delinquency and antisocial behavior, and family incompetence and social irresponsibility tend to appear in constellation. And in a good many instances mental health, correctional, and casework agencies are simply working on different aspects of the same underlying problem.

There is evidence, too, that the various behavior disorders with which these systems deal react on each other in the family setting. It follows that failure on the part of one agency to check a disorder helps to swell the flow of cases toward terminal agencies such as the state correctional institutions and state mental health institutions and the residual load of the public welfare department. Thus, in principle it would seem that these three systems have a joint responsibility to design a local service pattern which will make best use of available resources in preventing and reducing this flow.

In practice, the need for joint thinking and planning would seem to be compelling. There is substantial agreement, for example, that the agencies in the three systems of the maladjustment field should have at their disposal some combination of psychiatric, psychological, and casework service, together with underpinning of medical services, to diagnose and treat the cases for which they are responsible. Public health officers, mental institutions, correctional authorities, and casework agencies are now competing for this personnel. However, the facts about the incidence of

* To be published shortly by Columbia University Press, New York, N. Y.

problems in these fields seen in relation to the cold facts regarding available personnel are something less than reassuring.

There were, at last report, 197 hospitals for the care of the mentally ill, having an aggregate patient population of about 600,000. In addition, about 200,000 mentally defective patients were being cared for in 93 state institutions and a number of private institutions. There were about 700 community mental hygiene clinics (according to the USPHS, about one-fifth of the number needed in our communities). National figures show that annually nearly a million and a half sentences are served in our jails, prisons and penitentiaries, juvenile detention institutions and juvenile training schools. The last available figures reported about 2,200 public and private agencies in the country for the care of children—600 foster care agencies and 1,600 institutions. In January, 1950, the Family Service Association of America reported over 200 member agencies and premember affiliates which, in communities of all sizes, were carrying the bulk of the family casework load.

At last report, also, it was estimated that there were in the country 4,000 qualified psychiatrists, 1,000 clinical psychologists, and 15,000 caseworkers who have completed a full two year course in professional schools of social work. Despite helpful measures like the provisions of the National Mental Health Act to expand training opportunities and facilities, education for these three crucially needed professions must remain a time consuming process.

The picture would be grim enough if these facts told the whole story. But there is ample evidence that in addition to the people whose serious problems have brought them to the attention of some official or voluntary organization, many others are badly in need of diagnosis and treatment. In St. Paul there were four times as many mental defectives known to local agencies as were being cared for by state institutions. There were twice as many patients in state institutions as those with *diagnosed* psychiatric disorders known to community agencies, it is true, but the casework and correctional agencies reported 5,000 persons with symptoms of disorder for whom there had been *no* psychiatric diagnosis.

Such facts as these open up many new lines of thought about the manner in which the precious personnel now available could be put to better use in dealing with community-wide problems of behavior disorder. In almost all communities, the structures of the correctional, mental health, casework, and public health agencies concerned with these problems are ill-designed for purposes of efficient planning and operational teamwork. In almost all communities, also, there are obvious places where structural changes, reorganization, and consolidation would improve the situation.

The consultants who carried out this project believe, however, that too much talk about structural reorganization is putting the cart before the horse. Much more important, they believe, are experimental undertakings of broad purpose and design, aimed at the community-wide prevention and control of certain of the important end results of behavior disorders and social maladjustment. They believe that there is now available enough knowledge and experience in the fields of public health, mental health, correction, and family casework to justify planned joint experimentation in carefully selected communities. Such projects should not only lay a foundation for sound operational relationship among the major agencies in these fields, but should also add to our present meager epidemiologic knowledge about the community-wide characteristics of these disorders.

Recently, members of Community Research Associates, Inc., working with representatives of these special fields in a western state, got into blueprint shape the plans for the kind of experimental undertaking to which this research project logically leads. Roughly speaking, the aim of the experiment would be to help preserve family capacity to cope with health and social hazards common to our communities. The method of attack would be through a program of prevention and control of such consequences of family disorganization as child neglect and delinquency, crime, and mental illness in young people; and at the same time, an attack on the deteriorating effects of chronic disease and physical handicap, which we now see as being a highly important contributing factor in family disorganization.

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Despite the fact that district administration is now generally accepted in

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principle and is an organizational pattern recommended by authorities in the field, there has been practically no evaluation of this method of administration. Several expositions of district organization and health centers have appeared by Hiscock [2] and Wilinsky.[3] These presentations were published in the second and third decades and to them belongs the credit for popularizing the concept of districts. Hiscock reviewed district administration as a technique and presented some cogent arguments in its favor. However, it was not until 1947 that any evaluation of what had actually been accomplished over the years was attempted. In that year, Gordon [3] made a general survey of district administration in eight large cities (population between 500,000 and 1,000,000) and actually found only a relatively small degree of success in their operation. One of the major defects discovered was the absence of the necessary delegation of authority and responsibility to the district health officer.

Gordon states, "In general, there is a lack of appreciation of the full value and potential advantages of district health administration organization. Policies, objectives, and functions of district units are not clearly and adequately defined, and disagreement exists on the relative value of factors determining the size of district units, the services to be decentralized, and the manner best suited for their administration and organization." He thought that "The relationship between the bureau director and the district health officer, in particular, requires definition. The bureau director still remains reluctant to release control over any part of administration of service functions. This results in lack of responsibility for the office of the district health officer. There is a general belief on the part of bureau directors that introduction of a system of district health administration entails a stripping of their power." [4]

It is important to see why, after 40 years of district health administration, the success originally hoped for has not been attained. Before looking into this matter it is essential to distinguish between two concepts of decentralization. The term "district health administration" has carried with it the implication that administration has been decentralized at a district level. This has to be distinguished from the concept of a "decentralization of services," which might be more preferably termed "localization." Localization can be realized under either a centralized or decentralized administration. The localization of services to various neighborhoods has had a large degree of success. When we speak of the lack of success of district health administration, we mean the lack of success of the decentralization of administration and responsibility to the person of a district health officer, with only technical supervision and city-wide planning responsibility remaining vested in the central bureaus.

There are many reasons why this decentralization has not occurred. First of all, it is administratively difficult to decentralize an already functioning department. Bureau directors feel that much of their influence and authority is decreased by this process. Possibly if a new department were being created—districts established first, and then central bureaus set up in order to provide the necessary help and guidance—district administration would be a successful venture. The seniority of the bureaus has acted as an influential deterrent to successful district administration.

The major administrative problem resulting from the inauguration of districts is the relationship between the district health officer and the "central office," which includes the directors of the various specialized bureaus. Hiscock devotes a considerable portion of his

presentation to methods of dealing with this problem.[2] It is rather interesting to note, however, that even though Hiscock recommends that the district health officer be made responsible for the execution of the program in the district and that his work should not be limited to the mere routine of executive detail, he emphasizes what the district health officer should *not* be doing, while he discusses the central office bureaus' activities more positively. He makes a distinction between technical advice, which the bureau chief is supposed to offer, and supervision and administration, which are to be the district health officer's function. However, this is a distinction that is difficult to make in actual practice; and if the central office bureaus furnish not only technical advice but supervision and administration of the various specialized programs, the activities of the district health officer become very limited indeed. This basic problem of administrative organization and relationship is discussed in various works on public health administration.[5, 6]

It may be that one of the more important reasons for fostering the concept of decentralization was to justify the necessity for a health officer. The need for district health officers was probably of great importance in the twenties and thirties because it was essential for the health department to have an epidemiologist "on the spot" for communicable disease control. A good portion of the health officer's time actually was devoted to "shoe-leather epidemiology." In addition, in many situations the health officer could serve as a clinician. He doubtless devoted a not inconsiderable portion of his time to school medical inspections and to various clinics. This is still the practice in many communities. However, the changing pattern of public health administration following changes in medical knowledge has gradually altered the area of activities of the health department and the health officer. Today, communicable disease control occupies only a small portion of his time. It is also not considered desirable to have a physician trained in public health work in clinics, particularly where qualified part-time clinicians are available to do the job. The result has been to reduce the scope of activities of the urban district health officer.

One other aspect of district-central office relationship bears discussion. It has been the practice of health departments to obtain as bureau heads specialists who have been trained previously in their clinical fields, having a small amount of public health experience. (The undesirability of this type of preparation has been discussed in a report of the Committee on Professional Education of the American Public Health Association.[7]) The district health officer, on the other hand, is the general practitioner of public health. The difficulties in general practitioner-specialist relationship that exist in the practice of medicine in general are likewise reflected in the operations of the health department. The specialist does not particularly care to permit the district health officer, who is less well trained in a specialty, to take over the administration of a special program. He is loath to allow the health officer to make decisions in his specialized field. Probably the importance of this factor varies considerably in time and place, but that it exists cannot be denied.

Many urban health officers faced with this problem have fallen back on the fiction of "organic integration." The district health officers and bureau directors meet at intervals to thrash out their common problems. Policy decisions are made after "consultation" with the district health officer. The district health officer is "advised" on personnel, clinic sessions, and professional policy. He is "informed" before any changes are made. These are devices necessary

for harmonious operations, but they accentuate the essential uselessness of a district health officer.

It is quite possible that the existing situation is merely an intermediate phase in the development of district health administration. However, since the present compromise is administratively an unsatisfactory and undesirable one, consideration should be given to alternatives. Districts may be placed in a semiautonomous position, which, it must be admitted, was what was originally implied when they were established. In that case, district health services would be relatively more expensive, possibly less efficient, but much more satisfying as a job opportunity and as a training opportunity for public health work in general. The district health officer would be able to organize community, school, and industry groups into active participation in health work and would have the authority to make changes and provide additional services within appropriation limitations. He would play a more active role in the actual planning of programs which would probably be more responsive to local needs and conditions. The community would no doubt be the richer in terms of health services provided.

On the other hand, it may be that the consideration of economy and efficiency may be overriding, and thought should then be given to abolition of the district health officer position altogether. In this case, health centers and nursing districts may be maintained, but the center operation could be managed by a nonmedical public administrator with training and experience or both in community organization and health education. Bureau and division chiefs would make policy, plan programs and staff services, and supervise their own programs. Difficulties and friction would be disposed of at periodic staff meetings; and the need for district health officers, a drain on the available supply of public health physicians, would be automatically ended. Health center operations and the neighborhood provision of services could continue at a useful level, and health education, a major activity of a district, would be performed by a person trained and experienced in this phase of public health, under medical guidance from the central office. There may be some objections raised to having a nonmedical person serve in the place of a district health officer on the basis that it is necessary to have a physician in order to maintain relationships with the medical profession. This is a point of view that seems to us to have been overemphasized, particularly since the attitudes of, and relationships with, the medical profession would be determined by the health department as a whole through the services the department renders both the physician and his patient.

Since neither of these alternative proposals has ever been tried, the suggestion that naturally presents itself is that the entire concept of district administration be thoroughly examined and that actual study areas in which these proposals could be carried out be established. Recommendations derived from such studies could have an important influence on future public health practice. This would be valuable from the viewpoint of municipal district administration, but also with regard to local administration in states, since many of the features of district administration are present in the administration of state health services. Such an evaluation could readily be performed by the American Public Health Association or one of the many interested private foundations.

Before concluding, we must mention that one important exception exists to the foregoing. It has been the practice for some schools of public health and medicine to utilize a district for training students. Some health departments

have also set aside a district for training new department personnel. It is obvious that such a district requires a health officer with teaching ability who can devote a not inconsiderable portion of his time to teaching duties. Such a district still remains the most efficient method by which such necessary field training in public health practice can be provided.

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Special Invitation to Honolulu

The Hawaii Public Health Association will meet in Honolulu November 5 and 6. The theme of the two day program will be Modern Trends In Public Health. Discussion of heart disease, cancer, civil defense, and rehabilitation as public health problems will be included in the scientific sessions. Tours to the center for the treatment of Hansen's Disease patients, Tripler Army Hospital, and various public health centers, as well as to Pearl Harbor and the Temples of Honolulu are included. Dinner speaker on November 5 will be C. J. Van Slyke, M.D., director of the National Heart Institute. Since the meeting is being held immediately after the 79th Annual Meeting of the American Public Health Association in San Francisco, C. L. Wilbar, M.D., program chairman and president of the Hawaii Board of Health, issues a special invitation to A.P.H.A. members. All meetings will be held in the Mabel Smyth Auditorium.

Nursing in Group Medical Practice

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GROUP practice is a form of medical organization in which physicians representing various branches of medicine pool their experience, skill, facilities, and equipment in order to function on a coöperative basis, reduce operating cost, and provide a higher quality of medical care. This type of practice provides an opportunity to utilize the integrated skills of all members of the medical care team, which includes physicians, nurses, social workers, physical therapists, health educators, dietitians, dentists, and others, for the benefit of those served. We are here concerned with the functions of all types of nursing personnel operating within the framework of group medical practice.

Nurses may be utilized to: (1) administer and staff the group office, (2) visit in the home to provide bedside care and treatment and instruction on the maintenance of health, and (3) effect a liaison between the Group personnel and the community.

It must be recognized that nurses have varied training and experience. The responsibility and activities expected of a nurse will serve as a guide to the qualifications required. For instance, a nurse who assists physicians during office hours, gives injections, and performs other direct services for patients is adequately prepared for these duties by a good hospital school of nursing. On the other hand, a nurse who is administratively responsible for the overall nursing program in the Group Center should have additional preparation and experience in a supervisory-administrative capacity. If a nurse is to assume responsibility for teaching patients and for home visiting, she should have qualifications comparable to those of a public health nurse. In most Group Centers, many activities can be carried out by practical nurses, or nurses' aides, under the supervision of a professional nurse.

THE NURSE ADMINISTRATOR

One nurse, in coöperation with the medical director of the Group should be administratively responsible for: (1) planning and developing the program and policies for nursing service, (2) selection of nurses and nurses' aides in accordance with the qualification standards adopted by the medical group, and (3) studying and evaluating the nursing program. In addition, she should be directly responsible for: (1) administering the nursing service, (2) supervising nurses and nurses' aides, (3) planning and carrying out the training and educational program for all personnel under her direction, (4) maintaining adequate nursing service records, and (5) reporting on the nursing program.

She needs to know the volume and types of medical services to be provided, the schedule of physicians' office hours, the number and kinds of direct services a nurse will be expected to provide for patients, either during a visit or between visits to the physician, and what assistance each physician expects and needs from the nursing staff. On the basis of this information, she can determine the number and type of nursing personnel needed and can plan schedules for their work.

The economical and effective use of nurses in a medical group also involves a careful analysis of the responsibilities assigned to nurses. Such an analysis should show whether each nurse's highest level of skill is being utilized to the maximum. Conversely, are professional

nurses doing clerical or housekeeping work which could be economically assigned to another worker? Are nurses recording identifying information on charts, or is a nurse wrapping supplies for sterilization?

This analysis should point out areas where nursing skills could contribute to more effective use of physicians' skills and time. For example, does the pediatrician always have assistance from the nursing staff or does he weigh and measure children, and give immunizations himself?

The closely related work of physicians and nurses inevitably results in some overlapping. Each physician should determine when certain procedures can be performed by a nurse and when he should do them himself. Some physicians accept nurses as fellow workers to whom professional responsibilities can be delegated. Others tend to limit the areas in which nurses function. For example, some doctors ask nurses to give such medications as penicillin and mercuhydrin, while other physicians feel that only the doctor should give such injections. Doctors should be encouraged to ask for assistance from nurses. Nurses should be free to suggest ways in which they can help the physician in the Group.

THE PROFESSIONAL STAFF NURSE

The staff nurse should be assigned to assist physicians with their examinations and treatments as necessary, to give medications, to do dressings and give other treatments ordered by the physician, and to assist in the instruction of patients regarding the physician's orders. She is in a key position to gain pertinent information about patients and their problems through observation and conversation. A patient may talk to the nurse before seeing the doctor, or he may come to her afterwards with a question which he forgot to ask the doctor during his visit.

The nurse has an unusual opportunity to become acquainted with the patient when she gives a treatment or interprets the physician's orders. Here more is involved than explaining how to carry out a specific procedure, such as a steam inhalation or a sitz-bath, or teaching a patient how to give himself insulin injections. She may discover that the patient needs help from other workers on the health team. For example, the physician may advise a mother with household responsibilities and the care of two young children "to go home and rest." The nurse can help the mother plan realistically to get the needed rest, and if necessary refer her to other community agencies for help with nursing care and homemaker service.

All nurses, as well as other workers on the health team, need to share information to assure completeness and continuity of care and avoid repetition. The physician expects the nurse or social worker to bring to his attention emotional or social needs of patients which the patient may not have discussed with him. For example, a physician may assume that a primipara who had been a school teacher and had attended mothers' classes during her antepartal period would not need the help of a public health nurse on her return home from the hospital. However, the nurse or social worker may learn how insecure and fearful this 40 year old mother really is in relation to caring for her baby. If this information is shared with the physician, he can request home nursing service to help her adjust more easily to this new experience.

THE PRACTICAL NURSE *

The practical nurse can be given responsibility for preparing examining rooms, setting up treatment trays, cleaning instruments, sterilizing sup-

* In various parts of the country these workers are also known as trained or licensed attendants, or nurses' aides.

plies, and taking temperatures, weights, and heights. Under the supervision of the professional nurse she can do dressings and give other simple treatments, or assist physicians when a professional nurse is not required.

THE NURSE IN THE HOME

Another nurse member of the health team is the one who provides part-time nursing service in the home. Assuming that this service is to be included as a part of group medical practice, what are the functions expected of the nurse who is to provide the service? Ideally, she should be considered a member of the medical care team who will give nursing care and treatments, interpret and reinforce the physician's instructions, teach a member of the family how to care for a patient between the nurse's visits, observe symptoms and make periodic reports to the physician, so that he is always informed of the condition of his patient and can make visits only when it is necessary for him to see the patient. She will be expected to emphasize the promotion of health and the prevention of illness for all members of the family when she is visiting in a home. For example, she teaches good health habits and adequate nutrition, explains the need for an annual health examination, and urges medical attention for physical defects or early symptoms of illness which she has observed.

Do the physicians want a nurse to be sensitive to the social and emotional factors which influence the health of patients and members of a family and to share this information with them? Is it expected that she will be used to provide nursing care in the home so that some patients can be discharged from the hospital earlier than would be possible without adequate care in the home? A group of physicians who wish to use the skills of the public health nurse to the utmost and make her a member of the team would include all these functions and many more as a part of her job.

However, if physicians want a nurse who will "screen" visits for them, it is a questionable use of her skill and time. In general, patients do not want a nurse when they feel the need for a physician. It is unlikely that a nurse would be readily accepted in patients' homes for such visits. Since a nurse does not attempt to establish a diagnosis nor does she treat without a physician's order, she should not be used as a substitute for the physician. All she can do is report her observations to the doctor and in some instances suggest that the patient visit the doctor at his office. In most instances the physician also would have to make a home visit and thus valuable time might be lost. During a severe epidemic, however, the nurse working closely with the physician might be used to help screen demands for physicians' services in the home.

Some physicians may wish to use a nurse to give injections, but do not see any other function for her during her visit in the home. Perhaps the physicians in one group were satisfied to have a nurse make 20 home visits in one day just to give injections, but one wonders whether the patients were completely happy with the hurried calls they received, and whether they did not need some other care, advice, or reassurance from the nurse while she was there. It is doubtful that the nurse herself was satisfied with the type of service she had to give under these circumstances.

AMOUNT OF SERVICE

Besides considering how the nurse is to function in the home, the Medical Group must decide whether or not limits are to be placed on the nursing service. Since the physician and nurse who are sharing in the care of a particular patient are best able to determine the amount of service needed, it is not desirable to place limits on the number

and frequency of home nursing visits. One of the fundamental principles of public health nursing is that service given is based on the needs of each individual patient. A second principle is that patients and their families are helped to meet their health needs as independently as possible. Requirements about the number of visits which can be made for a specific condition may deny the application of these principles. Some mothers may learn how to care for their new babies in one or two visits, while others may need three or four. A wife may be taught to assume responsibility for the care of her husband who has cancer if she can work along with the nurse for a period of time and can feel free to ask for more nursing service should the need arise in the future. If any limits are to be set, they should be formulated so as to allow for flexibility in their application based on consideration of specific needs.

SOURCES FOR HOME NURSING SERVICE

The last point to consider is how the Medical Group is going to obtain its own home nursing service. In many communities arrangements can be made with an established nursing agency to provide this service, or the Group can employ its own public health nurse or nurses.

An agency which is set up to serve the entire community can usually provide a better and more economical home nursing service than can a Medical Group itself. When each nurse in a community agency is assigned to a small district with responsibility for all the patients in her area, less travel time is needed than when one or more nurses from a Group Center cover an entire city. The nursing agency also can provide a continuing service when nurses are sick or on vacation and can plan to meet the needs of patients on peak load days or during an epidemic. If all members of a family are not receiving medical care from the Group physicians, duplication results when two nurses from different agencies come into the home to provide care for different members of the family. The advantage of using a nursing agency which selects highly qualified staff and which provides good supervision and a continuing staff education program for its nurses cannot be overemphasized.

If the Medical Group uses the nursing service provided by an established agency in the community, it is most important that a referral system be established. In this way the nurses receive the physician's diagnosis and specific orders for the care of each patient and, in addition, other pertinent information, such as that concerning social and emotional factors which will assist them in providing the best possible care. The report of the public health nurse to the physician should include information about the physical condition of the patient, his response to treatment, and other information about the patient and his family which will assist the physician in his understanding of the patient's needs. This report should be made part of the patient's comprehensive health record. In a Medical Group where a written referral system is used, the physicians have expressed their appreciation for these detailed reports, which often have given information about family relationships, attitudes, and other social and health problems of which the physicians have been unaware.

If a Medical Group employs its own public health nurses, the same quantity and quality of home nursing service is likely to cost the Group more than when this service is provided by an established community agency. A larger staff of nurses would be needed by the Group (1) to make the same number of visits to patients living in widely separated areas of the city, (2) to meet the needs of patients at all times of the year, and (3) to provide adequate supervision.

However, the nurse who works directly out of a Group Medical Center has a closer working relationship with all the physicians and is more apt to be considered a part of the medical care team. She is more readily available to participate in individual and group conferences with the physicians and with other members of the staff where all are sharing information and planning for future care of their patients.

USE OF THE NURSE IN THE HOME

The place of the public health nurse in the home is just beginning to be apparent to physicians practising in Medical Groups. The public health nurse must do the best possible job of interpreting her service and of demonstrating to physicians how she can contribute to a medical care program through home visiting. If the medical director or another physician understands and believes in public health nursing, he can and will convince the rest of the group. This interpretation of home nursing service is often most effective if it is done by one physician to another. The contribution which can be made by the public health nurse will doubtless be utilized more effectively as group practice develops and is combined with prepayment plans.

FACTORS AFFECTING UTILIZATION

Several factors may account for the current relatively low utilization of visiting nurse service by physicians practising in Medical Groups. First is the traditional attitude that public health nursing is a charitable service; second is the psychological set of the physician toward medical practice, patients, and nurses; and third is that some physicians consider home nursing service to constitute economic competition.

A CHARITABLE SERVICE?

Historically, visiting nursing originated as a service for the sick poor, although some agencies early encouraged payment of token fees. Publicity for the voluntary nursing agencies has stressed the necessity for raising funds through annual campaigns or Community Chest drives, so that service can be provided for those who cannot afford to pay the total cost. But over the years payment for nursing visits has been secured from insurance companies, industries, and labor unions contracting for service, as well as directly from the individuals receiving the care. Visiting nurse service today is available to everyone regardless of financial status. However, there are still families who refuse this service because they "do not want to take charity."

PSYCHOLOGY OF MEDICAL PRACTICE

All physicians have had experience in working with nurses in hospitals, offices, and clinics. In these situations they have learned to rely on nurses to carry out specific procedures and to supplement their services. However, many have not realized that they can call on nurses to work with them in providing home service. Busy general or special practitioners must place a high value on their time. Thus, some carefully evaluate the needs of each patient to determine when they should see the patient and when a nurse or other worker can give the necessary care and treatment. Some physicians may not be well acquainted with the services provided by the visiting nurse. Still others have sufficient time to make home visits which could be ethically delegated to a nurse. Some physicians may feel that this service is for the poor only and do not want to embarrass their patients by suggesting a visiting nurse. A few doctors feel obligated to give personally to their patients all the services which their condition requires.

Occasionally the complaint is heard that nurses are "practising medicine." There is less chance of a good nurse

practising medicine, for she always must have specific orders from the doctor, than there is for the doctor to "practise nursing." Some physicians make a home visit to give a second injection of penicillin when it is not necessary to see the patient from a medical standpoint. Another physician makes home visits to do daily colostomy dressings after a patient has been discharged from the hospital. Physicians whose experience has taught them to respect and trust a nurse have found her to be a partner who complements their work and helps to provide a complete and satisfactory service to their patients.

IS THE NURSE AN ECONOMIC COMPETITOR?

A physician's attitude about home nursing service is influenced if its use cuts his own income. When medical care is provided by an individual or by a group of physicians on a fee-for-service basis, home nursing service may not be used because the physicians want to provide all the service and thus obtain more income. Would not a physician make as much money by using the nursing service when it is needed and by using his special skills rather in diagnosis and treatment? Would not patients receive better care if a nurse is asked to reinforce and interpret the physician's orders and to carry out these procedures for which she is trained?

When group medical practice is combined with prepayment and the physicians are receiving salary or are paid on a capitation basis, their income is not dependent upon the number of services rendered or of home visits made. It could be expected that in this type of practice the visiting nurse would be used effectively as a member of the health team. However, when the physicians as a medical group are responsible for paying the cost of visiting nurse service, their attitudes may revert back to the attitude of the solo practitioner. The advantages of using this service may be obscured by the desire of physicians for maximum income.

Doctors will consider this service an economical measure, when they are all well acquainted with the curative and preventive services provided by the public health nurse and have learned how she can save their time and improve the adequacy of care for patients.

THE PUBLIC HEALTH NURSE AS A LIAISON IN THE GROUP CENTER

No discussion of how the public health nurse functions as a member of the health team in group medical practice is complete without considering the value of having such a nurse working in the Group Center.

Serving as a liaison nurse between the visiting nurses and the physicians in the Medical Group is the most evident activity which the public health nurse in the Center can perform. In this capacity she assists in working out policies and procedures between the two groups. Because she is closely associated with the physicians she can explain specifically what services they can request from the visiting nurse. She can help the doctors understand why certain patients may need and profit from home nursing service when other patients with similar conditions may not need it. In this way she shares in the selection of patients who are to be referred for home nursing service. At the same time, she interprets to the patient and his family the reasons for the referral and the kind of service the physician has requested from the visiting nurse.

It would also be the responsibility of the nurse in the Group Center to see that referrals include the type of information the visiting nurse must have. As she receives and reviews the reports from the visiting nurse, she will bring them to the attention of the physician and discuss with him any information which is significant to an understanding of the

patient and to planning for further care.

By participating in case conferences she can share information which she may have secured from her contacts with patients in the Group Center or from reports of the visiting nurse. Periodically she may arrange for the nurse who is giving care in the home to attend these conferences. Such conferences afford the physician, nurses, and other workers present an opportunity to discuss needs of and plans for specific patients and to gain understanding of each other's functions as members of the health team.

In addition to her activity as a liaison nurse, the public health nurse can contribute in giving direct service to patients in the Group Center. Her skill in teaching patients can be utilized effectively when she works closely with the pediatricians and obstetricians during their office hours to complement and reinforce their instructions. Patients with medical and surgical conditions may also need help in learning how to carry out the physician's recommendations. For example, when teaching a diabetic patient to take his own insulin, she can also help him to follow the recommended diet so that he and his family can have the foods which they need and like. In some instances she might assist in planning and teaching classes for expectant mothers and fathers, for parents of young children, or for patients with a particular medical problem.

In her association with other members of the nursing staff she can demonstrate and teach how to gain knowledge and understanding of individual patients, when to share this information with other members of the health team, and the way in which this information helps provide for more adequate and satisfactory service.

SUMMARY

Group medical practice affords all nurses an excellent opportunity to work with physicians and other members of the health team effectively and efficiently. Nurses must take responsibility for helping others to understand, appreciate, and use the contribution they are prepared to make. Besides, nurses must learn what every other member of the team is qualified to do and how they depend upon and complement each other. Mutual respect, trust, and confidence based on an understanding of each other's knowledge and skills are essential to reaching a common goal, that of helping people to recover, maintain, and improve health. Those physicians and other workers who accept nurses as coworkers, as regulars on the health team, will find that their work goes along more smoothly and that the needs of their patients will be more adequately met. If success of a health program is measured by how well patients' needs are met, the nurse has an assured role to play and a responsibility to meet.

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Milk-borne Disease in Massachusetts, 1946-1950

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WHEN the first chronological report on this subject was made from Massachusetts in 1919, milk was still an important conveyor of disease. During the five years covered by this ninth report, none of the important milk-borne diseases were spread by this medium in the state.

MILK QUESTIONNAIRES

As in previous surveys, questionnaires were sent to the milk inspectors of all the large communities in the state, in order to obtain information regarding the amounts and varieties of milk sold and the inspections and laboratory examinations carried out.

Replies were received with sufficient information for tabulation purposes from 168 of the 198 communities with populations of 2,500 and over. Since only 7 per cent of the population of the state resides in the remaining 153 communities and in the 30 communities of over 2,500 which failed to supply sufficient information for tabulation purposes, the information obtained from these questionnaires gives an excellent picture of the situation in the state.

PER CAPITA CONSUMPTION OF MILK

The per capita consumption of milk (0.50 quart per capita per day) was essentially the same as that reported in 1944. The figures in the previous reports were 0.56, 0.46, 0.50, 0.45, 0.44, 0.42, and 0.51, for the years 1919, 1923, 1926, 1928, 1931, 1942, and 1944, respectively.

INCREASE IN USE OF PASTEURIZED MILK

The progressive increase in the use of pasteurized milk since the first report in 1919 has been continued. In Table 1 it will be seen that 99 per cent of the milk sold in the 168 communities, representing 93 per cent of the total population of the state, is now being pasteurized.

TABLE 1

Increase in Per cent of Milk Pasteurized in Communities Answering Questionnaire Massachusetts

Year	Communities Answering Questionnaire		% of Milk Consumed Which Is Pasteurized
	Number	% of Population of State	
1919	—	61.0	34.0
1923	41	65.0	74.0
1926	43	70.2	83.0
1928	95	83.0	85.7
1931	90	83.4	89.7
1939	143	90.0	92.4
1944	162	92.5	96.4
1949	168	93.0	99.1

In Table 2 it will be noted that practically 100 per cent of the milk sold in communities of over 15,000 population is pasteurized. Most of the small residue sold raw in these communities is certified milk. Marked increase in the use of pasteurized milk occurred in the communities of 2,500–15,000 population. A high per cent of pasteurized milk is sold in the communities under 2,500 population located near the urban

TABLE 2

Per cent of Milk Pasteurized in Communities Answering Questionnaire, by Size of Community
Massachusetts

Population Group	1923	1926	1928	1931	1939	1944	1949
50,000 and over	82.3	91.6	93.0	96.1	99.5	99.7	99.9
25,000–50,000	65.1	63.9	84.5	89.5	95.0	99.0	99.9
15,000–25,000	43.4	35.6	61.2	80.0	85.0	97.1	99.9
10,000–15,000	10.8	34.1	62.1	59.8	75.4	84.8	96.8
5,000–10,000	—*	—	51.9	55.3	65.0	81.3	95.2
2,500– 5,000	—†	—	—	—	58.5	79.4	94.2

* Questionnaires first sent in 1928.
† Questionnaires first sent in 1939.

TABLE 3

Per cent of Communities Answering Questionnaire Which Make Bacteriological Examinations
Massachusetts

Population Group	1928	1931	1939	1944	1949
50,000 and over	94.1	100.0	100.0	87.5	100.0
25,000–50,000	63.6	61.5	81.2	81.3	82.3
15,000–25,000	63.7	76.4	71.0	70.8	91.6
10,000–15,000	60.0	52.9	70.0	61.9	71.4
5,000–10,000	30.0	46.2	48.6	39.0	52.4
Total, All Communities	57.9	65.7	68.3	61.9	74.8
2,500– 5,000	—*	—	42.4	34.1	42.5
Total, All Communities			62.5	54.7	68.2

* Questionnaire first sent in 1939.

TABLE 4

Bacteriological Examinations of Milk by Communities Answering Questionnaire
Massachusetts

Population Group	Quarts of Milk Sold per Day *	Total Bacteriological Examinations			Examinations per 100,000 Quarts of Milk Sold		
	1949	1939	1944	1949	1939	1944	1949
50,000 and over	1,225,913	43,575	37,389	46,557	13.0	8.9	10.4
25,000–50,000	303,228	15,792	6,839	12,213	15.2	6.0	10.9
15,000–25,000	249,980	5,048	3,483	7,430	7.6	4.5	8.2
10,000–15,000	148,340	1,406	913	2,648	3.5	2.0	4.9
5,000–10,000	169,862	3,858	2,630	2,199	11.3	4.8	3.5
2,500– 5,000	69,421	3,317	2,466	2,822	19.5	8.8	10.8
Total, All Communities	2,166,744	72,996	53,720	73,869	12.2	7.2	9.3

* Multiply quarts of milk sold per day by 365 to obtain quarts sold per year.

TABLE 5

Inspections of Milk Farms, Milk Plants, and Pasteurization Plants, by Communities
Answering Questionnaire
Massachusetts

Population Group	Total Inspections			Inspections per 100,000 Quarts of Milk Sold		
	1939	1944	1949	1939	1944	1949
50,000 and over	23,336	10,469	15,368	6.9	2.4	3.4
25,000–50,000	4,722	6,045	3,218	4.5	5.3	2.8
15,000–25,000	6,679	2,945	2,245	10.1	3.8	2.5
10,000–15,000	2,425	1,877	1,311	5.9	4.2	2.4
5,000–10,000	3,908	2,342	1,887	11.4	4.3	3.1
2,500– 5,000	3,334	986	1,160	19.5	3.5	4.6
Total, All Communities	44,404	24,664	25,189	7.5	3.3	3.2

centers. There are only a few of the very smallest rural towns in which pasteurized milk cannot be obtained.

PASTEURIZATION REGULATIONS

When pasteurization equipment became easily available after the end of the war, efforts to obtain passage of regulations requiring the pasteurization of all milk sold were resumed. Since 1945, 32 additional communities have taken action, bringing the total which requires the pasteurization of milk to 117 communities. There are now only five communities of more than 10,000 population which have not adopted such regulations. These 117 communities represent approximately 85 per cent of the total population of the state.

It should be noted that in most instances regulations permit unpasteurized certified milk to be sold. This is to appease those who object strongly to pasteurized milk. However, less than 1 per cent of the total milk sold in the state is certified, and more than 75 per cent of this variety is pasteurized by popular demand.

BACTERIOLOGICAL EXAMINATIONS OF MILK

There has been some recovery in the laboratory control of milk from the low point reached during the war period, as recorded in the previous chronological report. In Table 3 it will be seen that most of the communities which dropped bacteriological examinations have resumed them once more. From Table 4 it will be noted that the total of bacteriological examinations exceeds the high point reached in 1939, but the increase in the total consumption of milk has reduced the examinations per 100,000 quarts of milk sold to 9.3, as compared to 12.2 in 1939. It should be noted, however, that there has been some decrease in the number of milk dealers and a considerable increase in the average quantities sold per dealer.

TABLE 6

Outbreaks of Milk-borne Diseases
Massachusetts

Year	Typhoid		Scarlet Fever		Septic Sore Throat		Diphtheria		Gastroenteritis		Dysentery		Undulant Fever	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
1886–90	1	50	1	4			1	50						
1891–95	5	241	0	0			1	6						
1896–00	15	323	0	0			2	42						
1901–05	20	305	5	220			0	0						
1906–10	23	1,252	6	1,383	1	200	2	88	1	20	1	20		
1911–15	31	613	6	462	8	3,961	3	39	1	16	0	0		
1916–20	18	412	4	140	7	683	2	45	1	35	1	126		
1921–25	11	228	2	109	2	76	2	32	2	57	0	0		
1926–30	5	135	3	157	4	1,229	0	0	1	172	1	13	2	13
1931–35	1	28	3	146	3	47	0	0	1	16	0	0	1	16
1936–40	0	0	0	0	1	284	0	0	1	35	0	0	0	0
1941–45	0	0	1	18	0	0	0	0	1	57	1	0		
1946–50	0	0	0	0	0	0	0	0	2	172	0	0		
Total	130	3,587	31	2,639	26	6,480	13	302	6	300	3	159	3	29

TABLE 7

List of Outbreaks Traced to Milk, 1946–1950
Massachusetts

Year	*Month*	*Place*	*Disease*	*Cases*	*Deaths*	*Source*	*Milk*
1946	October	Douglas	gastroenteritis (staphylococcal enterotoxin?)	40	0	Not known	Pasteurized
1949	October	Chelmsford Tyngsboro Westford	gastroenteritis (staphylococcal enterotoxin?)	132	0	Infected herd	(Improperly pasteurized)

This would tend to decrease the number of samples to be picked up for bacteriological examinations.

INSPECTIONS OF FACILITIES

There has been no similar increase in the number of inspections of dairy farms, milk plants, and pasteurization plants in the communities answering the questionnaire. The total number of inspections is approximately the same as that reported for 1944. The decrease in the number of milk dealers may account in part for the smaller number of inspections (Table 5).

MILK INSPECTORS

The situation in regard to milk inspectors has improved considerably since 1944. The control of milk is carried out in 53 communities by full-time milk inspectors. Eighty-six of the communities have a part-time milk inspector and only 37 have no milk inspector; 35 of the latter are communities of under 10,000 population.

OUTBREAKS TRACED TO MILK

It is significant that the important diseases, such as typhoid fever, scarlet fever, diphtheria, and septic sore throat, which formerly constituted the main diseases spread by milk, are not represented in the outbreaks of the last five years (Table 6). The only two outbreaks suspected of being milk-borne were gastroenteritis (Table 7). This result is not surprising, since the quantity of milk sold raw in Massachusetts is decreasing year by year.

SUMMARY

1. No outbreaks of important milk-borne diseases have occurred in Massachusetts during the last five years.
2. More than 99 per cent of the milk is pasteurized in 168 communities which represent 93 per cent of the total population of the state.
3. Pasteurization is required by regulation in 117 communities representing 85 per cent of the population of the state.
4. There has been some increase in the bacteriological examinations carried out by local boards of health since the low level of the wartime period.

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The Louisiana State Board of Health, Established 1855

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NO agency should overlook its historical background or fail to take into consideration its growth and expansion. At present, this is particularly valid for the Louisiana State Board of Health, which is looking forward to celebrating its centennial in 1955. Being the first established state board of health in the continental United States with a history of continuous existence, it is of special interest to reëxamine those aspects of its early struggles for existence which began in the turmoil of the pre-Civil War period and ran through the hectic Civil War and Reconstruction periods, and to trace how it carried on and grew without interruption or loss of identity.

The establishment of the Louisiana State Board of Health was authorized by Act 336 of March 15, 1855, as a result of several causal circumstances. First, New Orleans, which had been the capital of the state up to 1849 and was still the seat of many state administrative services, harbored about a fourth of the state's population * and owned an immense proportion of the state's wealth. However, the city had not been able to protect itself from the visitations of frequent epidemics which endangered the state as well as New Orleans, or to maintain a board of health for any length of time because of opposition from the commercial interests allied with the local press.[1] Second, the disastrous yellow fever epidemic of 1853 instigated the creation of the Sanitary Commission of New Orleans, which recommended the establishment of a city board of health. In order to avoid as much as possible interference from the commercial interests which had destroyed previous city boards of health, the state government was stimulated to create a state board of health which would act not only as health adviser to the City Council, but would also operate quarantine for the state.[2] This was done, and the State Board of Health served as adviser to the New Orleans City Council until the reorganization of 1898, when New Orleans was permitted to establish a municipal board of health under the jurisdiction of the State Board of Health.

The misconception that the Board of Health created in 1855 was a city-state organization has prevailed down to the present time. But nowhere in the Act of 1855, nor in the subsequent annual reports of the Board during those early days, is allusion made to such a relationship. Section 27 of the Act clearly states the name of the board: "Be it further enacted . . . that the Board of Health and their successors is hereby created a body corporate, under the name of the Board of Health of the State of Louisiana, to sue and be sued under that title."

Although Section 2 gave the City

* Population of the state in 1850 was 517,762, and of New Orleans, the third largest city in the United States, 129,717. Louisiana was predominantly rural except for several towns, of which Lafayette, with a population of 13,000, was the largest.

Council of New Orleans the authority to select three of the nine members of the Board, it also provided that they be subsequently "commissioned by the Governor for the term of one year, after having filed and subscribed in the office of the Secretary of State an oath well and truly to enforce and comply with the provision of an Act, entitled 'an Act to establish Quarantine for the protection of the State'. . . ." Considering the position that New Orleans held in the state at that time, there is nothing out of the ordinary in having allowed the City Council one-third representation on the Board. Dr. Samuel Choppin,[3] who was the first state health officer, wrote later: "The original theory of its (the Board's) formation was to make it a State Board, for the purpose of administering the quarantine; but the City was allowed representation in consideration of its great commercial interests."

It was only after 1877, as a reaction to the Reconstruction Period, when local commercial interests in New Orleans gained a majority representation (five out of nine members) on the Board, that statements began to be bandied about declaring the Board to be a city or a joint city-state board of health and not a state board of health. Not until the passage of Act 192 in 1898 was the majority on the Board returned to the state. As an offshoot of these circumstances, it had been generally believed that the Board's area of jurisdiction was limited to New Orleans. This is dispelled by the title describing the Act of 1855, to wit: "To establish quarantine for the protection of the State." Quarantine applied to the entire shore of Louisiana along the Gulf of Mexico, and the quarantine stations were located more than 70 miles south and 100 miles west of New Orleans (Section 7, Act 336, 1855).

Quarantine was not the only duty of the Board. Its broader duties are stated in Section 6 of the Act which provides:

> The Board of Health shall have power to remove, or cause to be removed, any substance which they may deem detrimental to the health of the City of New Orleans, and the Commissioners of Streets shall execute their orders, whenever not in conflict with the ordinances of the City or the laws of the State; to pass and enforce sanitary ordinances for the City, provided the same are approved by the council and published as City ordinances; and impose additional duties to officers appointed under this Act; to issue warrants to any constable, police officer, or sheriff in the State, to apprehend and remove such person or persons as cannot be otherwise subjected to the provisions of this Act, or who shall have violated the same, and whenever it shall be necessary to do so, to issue their warrants to the sheriff of the City or Parish where any vessel may be, having violated the provisions of this Act, commanding him to remove said vessel at the quarantine grounds, and arrest the officers thereof. . . .

That the Board actually carried on other duties besides quarantine is indicated by the nature and amount of correspondence exchanged between the Board and the City Council of New Orleans, in which the Board very frequently gave the Mayor and Council advice about drainage,[4] sanitation in relation to communicable disease,[4] and violation of city sanitary ordinances;[4] by the distribution of smallpox vaccine over the state,[5] and by the collection of epidemiological data concerning climatology[6] and mortality.[7] In the words of the State Health Officer, Dr. A. Forster Axson:[8]

> To those familiar with its features, it will hardly be necessary to say that quarantine forms only a part of what the law contemplated as a system of health measures. . . . Whether yellow fever, the scourge which specially necessitated the present system, be of domestic origin or introduced from abroad, was not, I imagine, the issue which controlled the judgment or decided the voice of the Legislature in the enactment of existing law. Relief and exemption for the future from these oft recurring desolations of pestilence was the great desideratum contemplated and demanded by the public, and accordingly the law most wisely was made to harmonize with the opinions prevalent then, as now, as to its source.

Dr. Axson refers to the fact that if yellow fever might not be of external origin, then internal sanitary measures, besides quarantine, would be necessary, and that the Legislature provided for this in the phraseology of the Act. Unfortunately, the provisions for internal sanitary measures were of an advisory nature, with only a limited scope of police power.

The law itself lacked much of that which most of the early Boards desired. Over and over again in the early years one finds the Boards recommending laws for adequate drainage (Annual Report of 1856); registration of births, deaths, and marriages (Reports of 1857, 1858, and 1859); improvement of food, water, excreta disposal, labor conditions, and housing (Reports of 1857 and 1859); regulation of midwifery and medical practice (Reports of 1857 and 1860); the control of all communicable diseases, sanitation, and nuisances (Reports of 1855, 1857, 1858, 1859, and 1860); practice of pharmacy (1860); and broadening of all health laws (Reports of 1866 and 1882).

The fact is that the Board's powers were gradually and definitely extended from decade to decade up to the reorganization of 1898. For example, quarantine powers were extended in 1858 by Act 279; in 1870 by Act 14; in 1876 by Act 68; in 1882 by Act 69; in 1884 by Act 98; in 1886 by Acts 23 and 120; in 1890 by Act 133. Its powers were further extended in 1874 by Act 142, creating a board of health for Shreveport; in 1877 by Act 14, providing for disposal of offal, garbage, etc., for parishes surrounding New Orleans, by Act 80, making the State Health Officer *ex officio* recorder of births, deaths, and marriages, and by Act 84, regulating the cleaning of vaults and privies; in 1878 by Act 110, creating a board of health for Baton Rouge; in 1882 by Act 85, enlarging the powers as regards inspection of buildings and premises, and by Act 92, empowering town councils and police juries of parishes to organize local boards of health; in 1890 by Act 123, authorizing the Board to enact all needful rules and regulations to protect operatives in factories, workshops, and laboratories.

The first president of the Board of Health was Samuel Choppin, M.D. The Board was organized on June 13, 1855, following passage of the Act on March 15, 1855. He served until A. Forster Axson, M.D., was appointed in 1856. The latter's annual reports are indeed classics in public health statesmanship and in epidemiological reasoning. Dr. Axson served through 1859 and was succeeded by Charles Delery, M.D. The latter served one year (1860) and was succeeded by G. A. Nott, M.D., the last civilian president of the Board until after the war. The latter served until the federal troops under General Butler took over the city and subsequently established military rule in Louisiana, with headquarters at New Orleans.

From the records in the Library of Congress, it was found that General Butler appointed Thomas H. Bache, M.D., as medical director of the Department of the Gulf on March 20, 1862. This was during the campaign for control of the mouth of the Mississippi River, but before the actual occupation and before General Butler's proclamation establishing martial law on May 1, 1862. On August 13, 1862, General Butler appointed Charles R. McCormack, M.D., who held this office until December, 1862, when Richard H. Alexander, M.D., was appointed (evidently by General Banks, who replaced General Butler on December 16, 1862). In a letter * from the Library of Congress, the Chief Archivist of the War Records Branch wrote as follows: "The records show that Lt. Colonel Richard H. Alexander was medical director of

* See Exhibit I.

the Department of the Gulf and President of the Board of Health on September, 1865; and there is no evidence that anyone else occupied the position of medical director during the period from December, 1862, to September, 1865."[9]

So vigorously did the Board carry on its sanitation and quarantine duties during the years of occupation that the healthfulness in the City of New Orleans had never previously been equalled. Dr. Elisha Harris of the U. S. Sanitary Commission, 1865, and superintendent of the New York Metropolitan Board of Health, 1870, said at that time that "so clean a City had never before been seen upon the continent."[10] Further evidence of the continuity of operations of the Board during the Civil War is found in the Annual Report of the Board of Health for 1866, which was the first report issued after termination of purely military rule: "Since the military occupation of the City of New Orleans by the U. S. forces, the property of the Board had been in their possession, and the quarantine laws of the state had been administered by a Board and resident physicians appointed by the Commanding General."[11]

Although available historical data to date have not revealed that anyone replaced Lt. Col. Richard H. Alexander after September, 1865, as Military State Health Officer, we do know from an article by E. D. Fenner, M.D., an on-the-spot witness, that the government in New Orleans "was handed back to the officials elected by the people on the 19th of March, 1866,"[12] and that on April 16, 1866, Dr. S. A. Smith was appointed State Health Officer by the Governor. It appears that Lt. Col. Alexander continued his tenure up to the time that civil authority took over. The foregoing quotation from Dr. Smith's Annual Report of 1866 implies continuity in the operation of the Board when changing over from military rule to civilian status.* Further evidence of such continuity is found in the following quotation from the eminent Dr. Chaillé who, in 1870, wrote a historical report on health conditions in New Orleans during the military occupation: "Civil replaced military government, March 19, 1866. The Military Board of Health extended its mortuary records of the civil population from November, 1862 to May 20th, 1866."[10]

It is not difficult to understand why there appears to be a short lapse in the available records. Such suspension of officially recorded data is common during critical periods, and this was an extremely critical period. The crisis grew out of the constitutional convention of 1864, when the state government was reëstablished under military surveillance. At this time, the proslavery Democrats gained control of the state apparatus and failed to give suffrage to the Negroes. The Republicans, in a move to wrest the state power and to confer suffrage upon the Negro, called a rump convention. This struggle culminated in the July 30 riot of 1866 in New Orleans, which was apparently perpetrated to intimidate the Negroes[13] and which resulted in many Negro deaths. It looked at this point as if the "reconstruction" of Louisiana had failed and new, more stringent measures would have to be taken to effect a real "reconstruction." Under such electrifying circumstances, it is no wonder that official recordings of the Board's activities may have become temporarily submerged.

From the period immediately after the termination of outright occupation, when Dr. S. A. Smith was appointed president of the Board, there are records showing a continuous series of presidents of the Board of Health down to the present time† and also records of annual reports for all years, except

* From all indication, the military did not give up its surveillance of Louisiana until 1877.

† See Exhibit II.

for the occupation years 1862–1865, the years 1868 and 1876, and the period 1934–1940. There are, nevertheless, records of the names of the presidents of the Boards of Health and various other data pertaining thereto for years when annual reports were not written.

The probable reason that no report was written for the year of 1868 was an intensification of the turmoil growing out of the struggle for power which was stimulated by the provisions of the Reconstruction Act, passed a year earlier. The radical Republicans came into power by their gubernatorial victory. Governor Warmoth appointed a new Board of Health on November 6, 1868. The old Board under Dr. S. A. Smith refused to resign, and a short but bitter period of litigation followed. During this interim, the new Board under Dr. C. B. White, which was legally recognized on November 13, 1868, did not have the records to write a report for 1868, and the old Board in its hostility did not write one. It has not been ascertained whether the old Board ever returned the records for 1868. At least, there is no evidence of this. But there are enough data available from the report of 1869 to fix the date of the old Board's termination and the new Board's institution as November 13, 1868.

There was likewise no annual report for the year 1876, due to the critical political conditions in the state and to the change-over of state health officers in the interim. In this year the Democrats chose Nicholls as Governor, but the Republican candidate Packard claimed the election. Meanwhile, Republican Hayes was elected President of the United States. Civil War almost broke out anew in Louisiana. President Hayes sent a commission to Louisiana to settle the impasse. The rival legislatures finally united under Nicholls as Governor, and the following year the federal troops left Louisiana. During this struggle, the State Health Officer, Dr. C. B. White, gave up his office in July, 1876, to be succeeded within several weeks by a member of his Board, Felix B. Gaudet, M.D., whose term lasted until May 1, 1877, when he was succeeded by Dr. Samuel Choppin. The details of the antagonisms that may have been reflected into the State Board of Health from the state government are not available.

Thus, the continuity of the State Board of Health has been definitely traced from its origin in 1855 to 1877. From this date onward, there is no need for tracing it, since the records are available without a gap down to the present time. At no time from 1855 on was the state without a law requiring the establishment of a state board of health, nor was the state without such a board of health for any appreciable period that might be considered as a gap in its continuity.

The year 1898, which has sometimes been given as the date when the Louisiana State Board of Health was established, is really the date when a more comprehensive Act was passed to include all the provisions for public health recommended by most of the previous Boards in the 42 year period beginning with Dr. A. Forster Axson's tenure in 1856.

The most persistent enemies with which the Board of Health had to deal, and the most constantly repeated struggles which plagued the various presidents and Boards themselves, according to their statements in the annual reports during the first half century of the Board's existence, were the commercial interests and the press, as was stated by Dr. Joseph Jones in the Annual Report of the Board for 1882 (Introduction, p. LV): "The opponents of the Quarantine System of Louisiana have continually used the press to arouse public indignation and hatred against the Board of Health, and especially against its president, by the cry that

quarantine was destroying the commerce of New Orleans."

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5. Annual Report of the Board of Health of the State of Louisiana for 1858, p. 38.
6. Annual Report of the Board of Health of the State of Louisiana for 1857, p. 30.
7. Annual Report of the Board of Health of the State of Louisiana for 1859, p. 33.
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13. From the Report of General Sheridan's Investigation.

EXHIBIT I

GENERAL SERVICES ADMINISTRATION

The National Archives

Washington, D. C.

August 15, 1950

Dr. Ben Freedman,
Director, Training Center
Department of Health
1436 Dryades Street
New Orleans 13, Louisiana

My dear Dr. Freedman:

The Department of the Army has referred your letter of June 21, 1950, requesting information concerning the operations of the Louisiana State Board of Health during the period of the Civil War, to this office for reply.

An examination of the records of the War Department in the National Archives has failed to disclose any information concerning the property or archives of the Louisiana State Board of Health. The records of the Department of the Gulf contain a large amount of material relating to the subject of public health and sanitation in Louisiana during the Civil War period.

This material is widely scattered. We regret that with our limited staff we cannot undertake the extensive research required to compile all of the information you are seeking. The records, however, will gladly be made available for examination by you in the search rooms of the National Archives.

The following officers served as Medical Directors of the Department of the Gulf:

Name	*Date of Appointment*
Thomas H. Bache	March 20, 1862
Charles R. McCormack	August 13, 1862
Richard H. Alexander	December, 1862

The records show that Lieutenant Colonel Richard H. Alexander was Medical Director of the Department of the Gulf and President of the Board of Health in September, 1865; and there is no evidence that anyone else occupied the position of Medical Director during the period from December, 1862 to September, 1865.

Very truly yours,

(signed) ELIZABETH B. DREWRY
For: Philip C. Brooks
Chief Archivist
War Records Branch

EXHIBIT II

Presidents of the Louisiana State Board of Health

1855 Board organized June 13, 1855	Samuel Choppin, M.D.
1856–1859	A. Forster Axson, M.D.
1860	Charles Delery, M.D.
1861–May 1, 1862	G. A. Nott, M.D.

May 1, 1862–1865 On May 1, 1862, General Benjamin F. Butler established martial law. The medical director of the Department of the Gulf (Federal Army Subdivision) served as president of the Board of Health. Existing civil laws concerning sanitary regulations and the collection of taxes for support of this work continued to be enforced. The medical directors of the Department of the Gulf were:

May 20, 1862	Thomas H. Bache, M.D.
August 13, 1862	Charles R. McCormack, M.D.
December, 1862–termination of occupation	Richard H. Alexander, M.D.

April 16, 1866–November 13, 1868	S. A. Smith, M.D.

Board returned from Military Rule and reorganized April 16, 1866, at request of Governor G. N. Welles

November 13, 1868–July, 1876	C. D. White, M.D.
July 1876–May 1, 1877	Felix B. Gaudet, M.D.
May 1, 1877–1879	Samuel Choppin, M.D.
1880–1883	Joseph Jones, M.D.
1884–1887	Joseph Holt, M.D.
1888–1889	Clement P. Wilkinson, M.D.
1890–January 31, 1898	Samuel Rutherford Olliphant, M.D.
January 31, 1898–1905	Edmond Souchon, M.D.
1906–1907	C. H. Irion, M.D.
1908–1909	D. Harvey Dillon, M.D.
1910–1928	Oscar Dowling, M.D.
1929–September, 1940	Joseph A. O'Hara, M.D.
September, 1940–February, 1942	John H. Musser, M.D.
February, 1942–July, 1942	C. L. Mengis, M.D.
July, 1942–June 30, 1946	David E. Brown, M.D.
July, 1946–July, 1948	Waldo L. Treuting, M.D.
July, 1948–June 30, 1949	William V. Garnier, M.D.
July, 1949–	Stonewall Jackson Phillips, M.D.

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OUR PROBLEMS AND THEIR PROBLEMS

THE mid-century has brought a general recognition of the fact that this globe on which we live is indeed a neighborhood, in which the safety and the happiness of every nation, large or small, depends in large measure upon what happens—or may happen—in every other country between the Northern and the Southern Poles. The "One World" concept of Wendell Willkie is not a sentimental dream. It is an essential for the survival of the human race.

Yet this ideal can only be approached by peoples who have at least some perception of the common end in view; and such a perception is still woefully absent from our thinking. In the United States and the United Kingdom there are probably many whose major interest today lies in the question, which team shall win the baseball pennant or achieve victory in a cricket match. In these and other countries there are still more whose thoughts are fixed on political control of Congress or Parliament or the Chamber of Deputies. Throughout Western Europe and North America and the British Dominions, the vast majority of us are concentrated on the avoidance of war or economic crisis which might interfere with the enjoyment of the relatively happy and prosperous conditions of our present life.

In other countries, containing two-thirds of the world's population, the problem is a different, and a much simpler, one. It is, "Shall we and our children have enough to eat tomorrow?"

This two-thirds of the human race has a diet supplying only 2,100 calories a day (with a mean income of $41 a year and a mean life expectancy of 30 years); while the more prosperous areas have over 3,000 calories (with a mean income of $461 a year and a mean life expectancy of over 60 years).[1] An expert committee of the FAO[2] has estimated that the overall mean requirements for a population vary from 1,860 calories per person per day, with a mean environmental temperature of 77° F., a small body build, and high birth and death rates (giving a large

proportion of children) to 2,390 calories per person per day, with a mean environmental temperature of 41° F., a large body build, and a high proportion of adults.

Thus, two-thirds of the human race has a calorie allowance close to the lower margin of survival. If the food supply falls below this minimum, we have such devastating famines as occurred this year in India. Even when the minimum is reached, there is no margin for the vigorous physical work necessary for high productivity and progress toward prosperity. For really heavy work, the food energy required rises to 3,000–7,000 calories.[3, 4]

Furthermore, where calorie allowances are adequate, health and efficiency are profoundly influenced by lack of specific essential food constituents such as proteins, salts, and vitamins. In Burma, for example, which has a marginal calorie supply and where actual starvation is not apparent, malnutrition is obvious. Recent nutritional surveys in that country showed that from 6 to 24 per cent of the children studied displayed signs of such malnutrition. Anemia, beriberi, pellagra, rickets, and scurvy are serious in such countries as British Malaya, Ceylon, China, and India. Brock and Autret[5] have recently reported on a disease known as kwashiorkor, widely prevalent in many parts of Africa, characterized by retarded growth in the early years of life, alteration in pigmentation of the hair and skin, fat infiltration and necrosis or fibrosis of the liver, edema, and heavy mortality. The condition seems clearly due to protein deficiencies and the authors consider it "the most serious and widespread nutritional disorder known to medical and nutritional science."

It is these and similar problems in which the majority of the human race is interested. Stringfellow Barr, in a recent pamphlet[6] (which everyone should read), has pointed out that the containment of Russia, by itself, is a wholly inadequate basis for global peace. If all Communist party members were banished to Mars (which might be appropriate), only a symptom would have been alleviated but the disease would not be cured. The fundamental disease is inequality of opportunity as between the peoples of the earth. There can be no stable world until the problems of poverty begin to be met. Moscow draws its world strength from the fact that it claims to be able to solve them. That claim we believe is demonstrably false. There is every evidence that such constructive ideals as once animated the original Russian revolution have been swallowed up in the construction of a police state, based on military power and the dream of world domination. But the aim of "stopping Communism" is not a rallying cry which has appeal in Asia or Africa. We need some more positive goal.

We have such a positive goal in the magnificent vision of the U.N. program of Technical Assistance, whose general ideals have also been embodied in the "Point IV" program of the United States and in the "Colombo Plan" of the British Commonwealth for South-East Asia. These activities involve a constructive program of aid to underdeveloped areas for irrigation and transportation, for improved agriculture, for public health service and education. This program is not a relief project for feeding starving millions, or a vision of a new world which would reorganize national economy and impose upon primitive peoples an alien way of life. It is a direct, simple, practical procedure for providing the leadership of trained personnel (and under the Colombo Plan the initial capital) necessary to assist underprivileged peoples in improving their own standard of living in their own way, a program of pump priming, of helping people to help themselves. It offers the only sure hope of "stopping Communism" by removing the discontent on which both Communism and Fascism breed. Our actual achievements so far have

been tentative, our appropriations for the purpose deplorably small. But only by this road can the common problems of the world be solved.

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APPROACH TO THE STUDY OF POLIOMYELITIS

WE are still so conditioned by past experience that we scarcely realize how striking has been the success attained in the control of communicable diseases.

From the standpoint of mortality, only two infectious maladies, tuberculosis and pneumonia, exert any appreciable effect on the death rate in the United States; and both of these diseases taken together account for less than one-tenth of the death rate from all causes (except in rare years of epidemic influenza).

So far as morbidity is concerned, however, the picture is a different one. Here influenza, the common cold, and other virus infections of the upper respiratory tract continue to be—with mental and emotional disorders—one of the two major causes of disability; while poliomyelitis, quantitatively less significant, constitutes an urgent challenge on account of the dramatic and appealing nature of the suffering which it causes.

The reasons why we have failed, so far, to control these two types of communicable diseases are obvious. In both instances, measures of isolation and quarantine —so successful with many infections—are practically useless because of the widespread dissemination of the germs in the general population without the presence of recognizable disease. As Theobald Smith once said, the successful parasite is one which does not kill its host—or, we may add, does not in many instances even make its host sick. In the second place, we have so far failed, in both the upper respiratory diseases and poliomyelitis, to produce generally effective measures of active immunization. In the case of the upper respiratory infections, some progress has been made; but variance in the strains of virus involved makes the task difficult. Finally, we have no "magic bullets" which can destroy these viruses as penicillin and similar substances will eliminate the causative agents of many bacterial diseases.

Further research along all these lines should of course be continued. One wonders, however, if, in the circumstances outlined, it would not be well to devote more attention than we have so far allotted to factors other than the germ itself. Dr. Sabin, in this issue of the JOURNAL, outlines the complexities of the problem in the case of poliomyelitis. He demonstrates the importance of the human genetic factor (which does not help us practically) and of the natural immunization of the

population by exposure to strains of low virulence. There is encouragement, here, for continued study on the development of a protective vaccine, although the task is clearly one of very great difficulty.

Another paper in this issue, by Dr. Armstrong, opens up what may prove to be an even more effective avenue of approach. His results strongly indicate that the prevalence of poliomyelitis is closely correlated with the absolute humidity of the atmosphere. Whether it is the humidity or the temperature which is dominant, it is certain that epidemics of this disease occur—and generally only occur—in hot weather when absolute humidity is high. It would seem probable that atmospheric factors must exert their influence on the superficial tissues of the respiratory or intestinal mucosa, through which germs gain entrance to the body. If this assumption were tested (as it could be tested by animal experiments under controlled atmospheric conditions) it might open the way to a wholly new procedure in preventive medicine. Is it not possible that further study of the physiological factors which favor, or limit, the passage of invading germs through the mucous membranes might reveal possibilities of control of real significance?

Furthermore, while the phenomena involved in the upper respiratory infections are widely different (indeed of an exactly opposite nature, as indicated by relative seasonal prevalence), a line of approach based on research into the problem of the factors which govern colonization of viruses on the mucous membranes, or passage through such membranes, might help to solve our other major unmet problem of communicable disease control.

In apology for such radical suggestions, the Editor joins Dr. Sabin in his quotation from Freud: "Even lectures I have given up, in order not to be forced to tell something that I only hope to learn some day."

SHOULD THE A.P.H.A. HAVE A SECTION ON MENTAL HYGIENE?

SOME years ago, there was much talk in the corridors at our Annual Meetings of the desirability of organizing a new section of the Association representative of the field of mental hygiene. Since that time the general subject of mental health has become more and more prominent on our programs; but the proposal for a separate section of mental hygiene appears to have faded from view.

It may seem impertinent for one who is neither a psychiatrist nor a member of the Governing Council to express opinions on such a problem. It is the privilege of an editor, however, to pontificate on *all* subjects, precisely because his views carry no official weight and commit no one but himself.

This editor believes that the arguments for a Mental Hygiene Section of the A.P.H.A. become less powerful with every passing year. This is not because the subject grows less significant, but precisely the reverse. It is because the area of mental hygiene has grown to such compelling importance that it must be a permeating influence in every section of the Association. This present issue of the JOURNAL illustrates the point. Drs. Safier and Corrigan describe an inservice staff psychiatric

training program for venereal disease workers in San Francisco; and Dr. Herbert Bauer discusses the applications of mental health in a chest clinic at Sacramento. Perhaps California is a bit ahead of the rest of us just now, but the same principle holds throughout the country and throughout all the areas of public health. The organization and administration of the health department staff is a problem in mental hygiene. So is the conduct of every clinic. So is the daily work of the public health nurse and the sanitarian. So is the task of the health educator and of every health department employee, whose aim is to alter by persuasion the habits of human beings. Therefore, the spirit and techniques of psychiatry should not be the subject for a separate group of specialists but a central influence in every Section of the Association.

It seems possible that many psychiatrists will agree with such a conclusion. They are prone to shun undue publicity and, like the Deity, they move in a mysterious way their wonders to perform.

If such a policy continues, it should be the responsibility of Section officers (with the exception, perhaps, of Laboratory and Statistics!) to see that the mental hygiene viewpoint is represented at every annual meeting of their respective groups.

Furthermore, there is one other obligation which the health officer at least might well bear in mind. He is—or should be—the master planner for community health and he must consider seriously the special institutional facilities provided for mental disease in his jurisdiction and be ready to support the efforts made for their improvement. Such efforts have been significant in recent years. We commend to our readers a pamphlet recently issued by the American Psychiatric Association[1] reviewing recent advances in this field.

The health worker needs the aid of the psychiatrist in every phase of his daily work. The psychiatrist needs the assistance of the public health profession in obtaining public support for the betterment of provisions for the care of the mentally ill.

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1. On the Positive Side. *Mental Hospital Service.* Bulletin of the American Psychiatric Association, 1624 Eye Street, N.W., Washington 6, D. C.

PROFESSIONAL EXAMINATION SERVICE

The Executive Board of the American Public Health Association announces that the name of the Merit System Service has been changed to the PROFESSIONAL EXAMINATION SERVICE. This change has been made in recognition of the expanding program of services to professional groups other than those operating under merit system or civil service regulations. Examinations are now being used for the selection of commissioned officers of the United States Public Health Service, for the evaluation of students of preventive medicine and public health nursing, for professional licensure and certification, and for the evaluation of training programs. Examinations are available to professional organizations, schools, universities, state licensing and certifying boards, specialty boards, governmental agencies, and to all authorized agencies concerned with the selection and training of professional personnel.

Inquiries concerning these services should be directed to Lillian D. Long, Ph.D., Director, Professional Examination Service, 1790 Broadway, New York 19, N. Y.

Credit Lines

NEWSPAPERS WANT SCIENCE ARTICLES

The National Association of Science Writers has recently distributed the report of a survey conducted in 1950 to discover the attitude of managing editors toward science writing. Questionnaires were returned by 50 of 150 newspaper editors queried. Forty-one of these reported special interest in medicine and public health. Atomic energy ran second, capturing the interest of 38 editors. Nearly all the editors believed that the amount of space given to science in their journals was now double or more of what it was ten years ago.

The report was prepared by Professor Hillier Krieghbaum of New York University's Department of Journalism. It should have particular significance to the public health profession whose activities and goals still lack understanding on the part of a large section of the public.

The report may be secured from the secretary of the Association of Science Writers, Alton Blakeslee, United Press, New York. Incidentally, Mr. Blakeslee has just begun a column, "Today's Health News," in *Today's Health* of the American Medical Association. The August and first issue is bright and chatty about more than a baker's dozen of medical items or curios. They help to explain why medicine and public health are favorite science subjects with newspaper editors.

PIONEERING IN SUMMER DAY CAMPS

Summer day camps for children are not much more than 10 years old. In the spring of 1950 the Welfare Council and the Children's Welfare Federation of New York City jointly prepared *Standards for Summer Group Programs for Children* to meet some of the growing problems until further surveys could be made.

In the summer of 1950 the City Health Department through its Bureau of Child Health made a survey of summer groups and day camps. Nearly 300 camps caring for from 75,000 to 100,000 children were found. Visits were made to 186 camps serving about 30,000 children. Many were found wanting in facilities, in program, or in personnel. And, of course, there were not enough camps for all the thousands in the street, as the report puts it, "hot, tired and dirty; eager and careless; unguided, unwatched, and unprotected."

Hence, in the summer of 1951 the New York Fund for Children made a grant of $30,000 to the Health Department to finance activities looking toward improved conditions in the city's day camps for children. This fund is being used to cover a two year period of surveying conditions in order to find what improvements are needed to safeguard the health and welfare of the children using day camps. An attempt will be made to determine what type of regulation of such camps by the city is needed, if any.

The survey is being carried out by a team made up of a pediatrician, nurse, educator, sanitarian, group worker, and social worker. This interdisciplinary group to tackle the problem of improving conditions is believed to be "a new and different kind of endeavor."

Just to bring the public along the road of better day camp services, the Department prepared *Pointers for Parents: Choosing a Day Camp for Children.* Its wide distribution for a season or two should make many a parent look with a jaundiced eye at unsuitable day camps. Day Care and Foster Homes Division, Bureau of Child Health, 125 Worth St., New York City.

WICHITA WINS TRAFFIC SAFETY AWARD

Wichita, Kans., was recently awarded

the National Safety Council's grand award for traffic safety. Governor Ed Arn presented to Mayor Floyd Amsden the plaque giving Wichita the nation's top award for traffic lifesaving. The grand award was in addition to winning first place in Wichita's population group and awards for outstanding achievement in public information and safety organization.

Wichita set a number of new traffic safety records in 1950. The city recorded no traffic fatalities for 242 consecutive days, a record beaten only once since the national contest started, by Hartford, Conn., in 1948. Also completed in 1950 were 366 consecutive days without a pedestrian fatality.

Driver education in the Wichita schools is an important part of the safety program. Safety competition among drivers of high school age is carried on each year. Bicycle clubs and safety instruction are sponsored for younger children. A junior traffic safety court is part of the program. Juveniles who violate traffic ordinances aren't fined—they are required to attend a school conducted by the police department on Saturday mornings. Violators must attend three school sessions, and the records reveal few repeaters.

NARCOTICS CONCERN UNITED NATIONS

As if to underline our own national concern with the narcotics problem, the Economic and Social Council of the United Nations has recently published the report of its Commission on Narcotic Drugs, which met in mid-1949. The four main problems dealt with were:

a. Drawing up of a single convention to simplify and improve the eight existing instruments on narcotic drugs
b. Considering the desirability of concluding an agreement for limiting the production of raw opium
c. The physiological effects of chewing the coca leaf and limiting its production
d. Illicit traffic in narcotics

The complete report is available from Columbia University Press, official distribution agent in the United States. 2960 Broadway, New York 27. 60¢.

IF YOU'RE GOING ABROAD

Immunization Information for International Travel has been prepared by the Division of Quarantine of the U. S. Public Health Service for persons planning to travel outside the continental limits of the United States. Based on existing International Sanitary Conventions, it includes information on:

a. Immunization requirements of foreign countries
b. Immunization requirements for entrance into the United States
c. Immunizations recommended as a precautionary measure
d. Use of the International Certificate of Inoculation and Vaccination

Official changes will be reported in the weekly "Communicable Disease Summary" of the Service. The new regulations approved by the World Health Organization in the spring of 1951 go into effect on October 1, 1952, at which time presumably *Immunization Information* will also be brought up to date with the new regulations. Government Printing Office, Washington 25, D. C. 20¢; 25 per cent discount on orders of 100 or more.

"NEWS AND PLANS" STARTS GROWING

Hitherto *News and Plans* of the Kentucky State Health Department has been a 5 by 8 inch folded leaflet. With the July issue it made a leap toward manhood by becoming 8 by 10 inches in stature. The hand of the new director of local health services, Dr. C. E. Reddick, is visible in this first issue of the enlarged bulletin, for it is devoted mostly to local health matters. One title is "3¢ A Week Will Buy A Lot Of Public Health"; another, "Problems Ride Coat Tails Of New Found Prosperity" emphasizes the importance of

health department services in atomic energy plant and in recreation areas. 620 S. Third St., Louisville 2.

HEALTH RADIO PROGRAMS AVAILABLE

Transcriptions of the popular "All Their Powers," five radio programs on community action for public health, are now available on a loan basis without charge for community use on play-back machines as well as for rebroadcasts. They are the stories of how the citizens in five communities set about to meet their own health problems. Health Information Foundation, 420 Lexington Avenue, New York 17.

MAKING THE MOST OF SCHOOL DAYS

The New York City Department of Health has prepared parents for the opening of school with a little booklet *School Days*. In simple but not condescending language, it summarizes the facts about school admissions and the guides to happy school life. It emphasizes not merely physical care but emotional; though no longer a baby, the school child still needs to feel loved and secure in his place in the family. Leona Baumgartner, M.D., is assistant commissioner in charge of child health services of the Department. 125 Worth St., New York 13. No information as to distribution outside of New York City.

THE PLACE OF PUBLIC HEALTH IN MEDICAL EDUCATION

An important report has been published under the title *Lima Declaration Regarding Medical Education*, being a report of the First Pan American Congress on Medical Education held at the National University of San Marcos in Lima, Peru, May 14–18, 1951. This Congress, which commemorated the Fourth Centennial of the Founding of the National University of San Marcos, studied the problems confronting the teaching of medicine at the present time and concluded that the broadening of the study of social and preventive medicine and the training of physicians was the number one requirement.

Among the conclusions as published are the following:

1. To direct medical education toward preventive and social medicine. 8. Not to increase the specialties in the work required for graduation. 24. The teaching of social and preventive medicine will be developed in a special department throughout the academic years. 26. In addition to the advanced, specialized, clinical and laboratory courses, preference should be given to the organization and maintenance of a school of public health. 27. To promote the teaching of the specialties, financially, by increasing the resources of the department or by creating special centers for the study of public health and for research connected with the study.

It is significant that the conclusions emphasized on the one hand the necessary development of public health and preventive medicine as specialties and at the same time declared that further fragmentation of the medical curriculum into specialties was undesirable.

Copies of the conclusions in English can be obtained from Dr. J. Harland Paul, Institute of Inter-American Affairs, c/o American Embassy, Lima, Peru.

WORTH ACQUIRING

How To Have a Successful Conference is the testimony of 21 audiovisual specialists as to what makes a conference click or not click. The connective tissue that makes a unity of the testimony has been provided by Edgar Dale and Seth Spaulding of Ohio State University as editors. It's a well put together pamphlet of some 35 pages, illustrated with petite line drawings that say a lot, humorously. Informality and every-member participation are indicated as imperatives in any group conference. Of course there has to be something to confer about—something in which the group is interested. The cover carries the words, "A Payne Fund Communica-

tion Project," but the reader is left in the dark about the Payne Fund. Bureau of Educational Research, State University of Ohio, Columbus 10. No information as to price or distribution.

There's No Place Like Home is an apt title for this new accident prevention booklet. There has been practically no change in the home accident rate in the last 15 years. In the same period, the industrial accident rate has been decreased about 50 per cent and the motor vehicle rate, based on mileage, about 40 per cent. This new booklet has amusing illustrations of all the things that can happen in a home by way of accidents—falling over toys on the stairway, starting a fire with cigarettes or defective wiring, slipping on a rug or in the bathtub, among many others. It should be useful in any home accident prevention campaign. Prepared by the Public Health Service and available for purchase from Health Publications Institute, Raleigh, N. C. Price not reported.

Trapped is a "comic" in four colors on how youngsters get started on the road to drug addiction and how they have to take the hard way of getting off of it. In between, there are poor school grades, accidents, lost jobs, lost friendships, jail, and finally hospital. It's a pretty grim comic but it should be useful in an educational campaign, for high school students particularly. Prepared with the coöperation of the Committee on Narcotics of the Welfare Council of New York City by the Communications Materials Center of Columbia University Press, 413 W. 117th St., New York 27. No information as to price.

How You Grow is another in the Junior Life Adjustment Series of Science Research Associates (57 W. Grand Ave., Chicago 10). It is particularly useful in dissipating the fears of the youngster who thinks he (or she) is too fat, too thin, too tall, too short, too sleepy, too pimply, too clumsy, or any of the other variations from the fellow next door that may be a part of the journey to maturity. Written by Bernice Neugarten, assistant professor, Committee on Human Development, University of Chicago, and illustrated by Lucy Ozone. 40¢; 3 for $1.00; quantity prices.

Publications List of the Child Study Association of America (132 E. 74th St., New York 21) is intended for parents, teachers, and professional workers. The experience of this 63 year old organization has been distilled into numerous pamphlets that give practical help for many problems, from babyhood through adolescence. This publications list, which includes some suggested books, might well be in the hands of maternal and child hygiene directors, mental hygiene consultants, and health education directors of health departments.

ANNUAL REPORTS

The *1950 Annual Report of the Public Health Service* provides a unique opportunity to get a broad view of public health problems and progress throughout this country and with regard to the activities of our government in other countries. Few readers will be familiar with all the stimulating aspects of public health covered in this report. Worth reading for its subject matter and the encouragement it gives through a glimpse of what public health is doing and can do in the future. Superintendent of Documents, Washington, D. C. 25¢.

Good Horse Sense Makes for Blue Ribbon Health is the 1950 annual report of the Bedford-Marshall Counties Health Department of Tennessee. This is fitting, since the two counties are said

to be the cradle of the walking horse industry. Throughout, pictures of spirited winning race horses are used to illustrate the need for healthy surroundings and good care for the spirited winning man. The story is told almost entirely in photographs. It should be widely read by citizens. Its closing words, in the background of a horse's bridle, are, "Hitch together your health problems, your individual and community resources for health."

The report is a little weak on statistics. The reader can't even find out that the population served by this district department is about 41,000. And one reader, at least, is unable fully to understand the page of pie charts.

The Minnesota Department of Health uses the summer issue of its monthly, *Minnesota's Health*, to make its "report to the people of the state on health conditions, particularly during the past year." A surprising amount of information is packed into the eight pages. One of its interesting features is a two page spread in which some of the outstanding services carried on in each state district are described. State services apparently make up many of the inadequacies in a state in which local communities, largely cities, provide for full-time health service to only about a third of the state's population.

Health Protection and Medical Care, 1940–1950 is the annual and 10 year report of the Kansas City Health Department, whose director is Hugh L. Dwyer, M.D. This is one of the numerous municipal departments in the country which also have responsibility for the operation of the municipal hospitals. Thus, in terms of 1950 expenditures, the public health, or, to use their own term, "preventive" aspects are less than 12 per cent of the job—83 cents per capita for public health, $6.23 for hospitals. Apropos of this combination, the report says,

> With the constantly narrowing gap between curative and preventive medicine, the Department is fortunate in having hospital facilities under its control. This permits the housing of many health department activities at the hospital and makes for a coöperative attitude among workers in preventive medicine, laboratory, and adjacent hospital services.

The report tells about the Department's services by using a historical approach. It lists the various activities that have been initiated or reorganized in the years between 1940 and 1950, including a brief paragraph on what each has accomplished and is currently doing. Comparative figures for every fifth year since 1920 reveal some amazing improvements: the 1949 maternal death rate only one-fifteenth of the 1920 rate; infant mortality rate less than one-fourth, tuberculosis death rate less than one-third. Although the Negro tuberculosis death rate has decreased much faster than the white, the 1949 Negro rate remains higher than the 1920 white rate.

The report is in convenient spiral binding. Its simple but effective line drawings are the work of the Department's sanitarian, Chester Stark.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Child Psychiatry in the Community. (A Primer for Teachers, Nurses, and Others Who Care for Children)—*By Harold A. Greenberg in collaboration with Julian H. Pathman, Helen A. Sutton, and Marjorie M. Browne. New York: Putnam,* 1950. 296 pp. Price, $3.50.

This book, as the title implies, gives quite a complete picture of the place of a child guidance clinic in the community. Since the authors write chiefly of child guidance as practised at the Institute for Juvenile Research, Chicago, the first and largest of such clinics in the United States, it is fortunate that they give a comparison picture of a smaller, privately financed clinic, the Wilder Child Guidance Clinic in St. Paul.

The authors have succeeded in giving a great deal of information on a wide range of questions which are raised by both professional and lay people about child psychiatry and child guidance clinics.

The contents are divided into three parts. Part I, "The Child," includes seven chapters on the child; The Child-guidance Movement in the United States; Personality Development; The Psychogenesis of Behavior Problems; Symptoms-Diagnosis; Prognosis; Treatment in a Child-guidance Clinic; and Collaborative Therapy.

Part II, "The Clinic Team," describes the contribution of the Psychiatrist, the Psychologist, and the Social Worker.

Part III, "The Clinic and the Community," gives a good picture of the function of the clinic in relation to community agencies, as demonstrated in such chapters as: The Psychiatrist's Role as Consultant in a Children's Institution; Emotional Problems in a Hospital-School for Crippled Children; Child Guidance and the Nurse; Child Guidance and the Teacher; Juvenile Delinquency; and A Look to the Future. Chapter 13, Child Guidance and the Nurse, is an excellent chapter, one which might well be reprinted and made widely available to student and graduate nurses.

An Appendix includes statistics and application forms. It should be of some import to public health personnel that in a statistical summary of sources of new cases accepted at the Institute of Juvenile Research during one year, out of a total of 1,071, only two were referred by physicians!

MARTHA W. MACDONALD

Handbook of Diagnosis and Treatment of Venereal Diseases—*By A. E. W. McLachlan (4th ed.). Baltimore: Williams & Wilkins,* 1951. 355 pp. Price, $4.50.

This volume, written by a British physician specializing in the venereal diseases, is sufficiently comprehensive as a handbook, with well selected charts and illustrations. For the general practitioner and student it provides a ready reference to concise information on pathology and diagnosis of venereal diseases. However, the discourse on therapy does not follow present-day American concepts and practices, but outlines very conservative schedules of treatment. The recommendations are based upon the European approach, which places great emphasis on the value of heavy metals, although recognition is given to penicillin and other antibiotics in the treatment of syphilis.

The author also stresses the im-

portance of therapeutic tests and the use of Tryparsamide, neither of which is generally accepted among American syphilologists.

In dealing with gonorrhea and other venereal diseases, the author overemphasizes the older methods of therapy, i.e., sulfonamides, irrigations, and manipulations. Surgical techniques and manipulations are given undue prominence for a book of this type, since these are procedures usually followed by the specialist and not by the general practitioner or the student.

The volume has another weakness in that it does not present more emphatically the importance of the public health aspects of venereal disease control.

In all probability, this book will not enjoy wide use in the United States for the various reasons mentioned, as well as the availability of publications covering more modern and acceptable methods of treatment. A. FRANK BREWER

When Mental Illness Strikes Your Family—*By Kathleen Doyle. New York: Public Affairs Committee, Pamphlet No. 172,* May, 1951. Price, $.20.

Few members of our population escape the need at some time in their lives to recognize symptoms of mental illness. Many of these people also will need to know how to obtain treatment for the mentally ill patient. Since this is true, this pamphlet by Kathleen Doyle is a timely addition to the well known series of Public Affairs pamphlets.

Probably the chief contribution of this pamphlet is its practical discussion of how to obtain help for the patient; methods of hospitalization of the patient; brief discussion of various kinds of treatments in the hospital; the way in which members of the family can be most helpful at the time of hospitalization and during this period; and finally the family's part in helping the patient after he is well enough to leave the hospital. The brief, direct comment on these and allied matters should be welcomed.

Writing as she does for people the country over, the author must and does bring in disturbing information about old-time, regrettable commitment laws and procedures that are still extant. In preparing relatives to meet situations of this nature, painful to themselves and to the patient, she reminds citizens in general that these conditions still exist and should be rectified on the basis of current knowledge of mental illness.

Perhaps it is impossible in a few brief pages to describe mental illness in a way that is at the same time meaningful and supportive. One feels that in the first part of the pamphlet, the author, because of limitation of space, makes some too specific statements. For example, she says, in an illustration of organic psychosis, that "Col. Jones had reached the age when his brain had begun to deteriorate." One cannot avoid the implication here that marked deterioration to the point of delusions sets in at a given chronological age—a concept which the author probably did not intend to convey. Also, some would question the discussion of "involutional melancholia" as an entity. On the other hand, the very brief material on the final page of the pamphlet, entitled "How Can You Promote Mental Health in Your Family" is to this reviewer a fine, supportive, useful statement. RUTH GILBERT

Milk and Milk Products—*By C. H. Eckles, W. B. Combs, and H. Macy (4th ed.). New York: McGraw-Hill,* 1951. 454 pp. Price, $5.00.

The authors have prepared an informative treatise on a multiphase subject to instruct the beginning student interested in the handling and processing of fluid milk and manufactured dairy products. For the purpose intended, the book is well written, but it is obvious that the discussion of so many subjects in one volume is not intended for the critical

student. This is illustrated by a few errors of fact.

The fourth edition does contain illustrations of processing equipment which did not appear in earlier editions. The printing is on a good grade of paper, and the subheadings in boldface type on each page are helpful. The 407 pages of text are followed by 22 pages of appendix material and 24 pages of indexing.

A. H. ROBERTSON

Institutional Sanitation: A Manual on Environmental Sanitation Prepared Specifically for the Use of Sanitary Supervisors, Bureau of Prisons—*By Graham Walton. Leavenworth, Kans.: Federal Prisons Industries, Inc.,* 1950. 471 pp. Price, $2.50.

Although prepared primarily for the guidance of Sanitary Supervisors at institutions operated by the Federal Bureau of Prisons, this manual compiles in 19 chapters a wealth of information on environmental sanitation that may be used profitably by administrative or service officers responsible for the operation, sanitary inspection or sanitary maintenance of any type of institution in which people are housed and fed. It will be particularly valuable to health supervisors of institutions operating their own utilities, milk production, meat production and slaughtering, and industrial or shop activities.

In addition, there are chapters on water supply, plumbing, sewage treatment, garbage and refuse disposal, insect and rodent control, eating place sanitation, milk, meat, ice, and barber shop sanitation, and industrial hygiene. Each explains clearly the sanitary significance of recommended requirements and maintenance standards. The final chapter lists sanitation test equipment and its use. Reasons for performing tests are presented, together with directions for their performance.

The author is intimately acquainted with sanitation problems in federal penal and correctional institutions through his years of experience in working coöperatively with Chief Medical Officers, Sanitary Supervisors, and the Bureau of Prisons to maintain healthful environmental conditions in the facilities operated by that agency. Use has also been made of information and standards secured from a wide range of sources. This material has been adapted to the particular field of prisons, in which there are some peculiar problems resulting from the type of person involved and the need for strict confinement.

Mr. Walton has rendered a real service by combining within one set of covers a manual embracing all phases of environmental sanitation at places of detention or similar institutions, in a style readily usable by the nonprofessional sanitation worker.

R. J. VAN DERWERKER

Heating, Ventilating and Air Conditioning Guide (29th ed.). *New York: American Society of Heating and Ventilating Engineers,* 1951. 1456 pp. Price, $7.50.

The *Heating, Ventilating and Air Conditioning Guide* is published annually by the American Society of Heating and Ventilating Engineers. This review covers the 29th edition issued for 1951 and containing 1456 pages.

There has been little change of importance to public health engineers from the previous edition issued in 1950. The seven basic sections, namely, Fundamentals, Human Relations, Heating and Cooling Loads, Combustion and Consumption of Fuels, Systems and Equipment, Special Systems, and Instruments and Codes, remain as before—although many of the subsections have been revised to keep abreast of the changing times. The chapter on Heat Transfer has been expanded considerably. New data obtained from research at the A.S.H.V.E. Research Laboratory and at universities under contract with the

Society have resulted in enlargement of the chapters on Heat Transmission Coefficients of Building Materials, Heating Load, Cooling Load, and Air Duct Design. New data on the properties of moist air have been included in the chapter on Thermodynamics and incorporated in a new 24″ x 30″ psychrometric chart, enclosed inside the back cover of the book.

Of particular interest and value to public health engineers are the chapters on Physiological Principles, Air Conditioning in the Prevention and Treatment of Disease, Air Contaminants, Infiltration and Ventilation, Air Cleaning, Industrial Exhaust Systems, and Codes and Standards. Those engineers who are confronted with industrial hygiene problems will have use also for the chapters on Air Distribution, Air Duct Design, Fans, and Industrial Air Conditioning. The 29th edition of the *Guide* retains its excellent quality and its high degree of usefulness as a source of practical information on problems relating to heating, ventilation, air sanitation and air handling. ALLEN D. BRANDT

Multiple Sclerosis. Application of Rehabilitation Techniques—*By Edward E. Gordon. New York: National Multiple Sclerosis Society.* 54 pp. Available to physicians and qualified physical therapists upon a written request.

There have been published under the auspices of the National Multiple Sclerosis Society of New York several useful brochures on this disease. The present volume continues the series with down-to-earth applications of rehabilitation techniques. It is announced that subsequent manuals for use by patients with various handicaps will be produced, and a monograph is in preparation on the psychological implication of multiple sclerosis, as well as a manual on psychotherapy for use by patients.

This manual is a first-rate example of the efforts of the National Multiple Sclerosis Society to uncover through research the etiology and effective therapy for the disease. The volume is adjusted both for those unfamiliar with rehabilitation in these conditions and for those more expert in the field. There are sections on possibilities and limitations of rehabilitation procedures, on the evaluation of disability, and on a program for rehabilitation. Most of the volume is given over to treatment of spasticity, muscle weakness, contractures, incoördination, crutches, braces, wheel chairs, and other devices.

This volume ought to be accessible in every Visiting Nurse Association office and, in fact, to all who deal with rehabilitation of persons with this disease.

REGINALD M. ATWATER

The Chemistry and Technology of Food and Food Products—*Edited by Morris B. Jacobs. Vol. I (2nd ed.). New York: Interscience Publishers,* 1951. 832 pp. Price, $12.00. Volumes II and III to be published later.

As in the first edition, Dr. Jacobs has compiled and edited an amount of information written by various authors on the subject of the chemistry of foods. In this, the second edition, Dr. Jacobs has improved on four chapters by rewriting these himself. Starting with a brief history of the use and processing of foods and continuing for seven chapters on the physical constants and chemistry of the carbohydrates; lipids; proteins; enzymes; vitamins, vitamers and hormones; and the inorganic constituents; the first part is concluded with the digestion and fate of food in the human body. A chapter on food coloring here seems out of place and the chapter on food spoilage and food poisoning is not too complete.

The second part comprises procedures used in the processing of foods and includes material handling, measuring, storage and processing procedures of all types.

Part III, entitled "Sanitary and Quality Control," includes material on food supervision and grading instrumentation, food machinery, plant maintenance, and insect and rodent control.

Most of the information in the various chapters has been brought reasonably up to date with some exceptions. For example, a superfluous table of the effective date of standards for food grades fills three pages; the true story of poultry grading is not brought out; the control of "food-borne enteritis," it is said, can be carried out by the rigid inspection of all animals that are slaughtered; warfarin is not mentioned; and some of the newer studies in biochemistry are also not mentioned.

Dr. Jacobs has done a remarkable job attempting to compile in these volumes complete information concerning foods for use by commercial food processors, commercial laboratories, and officials of agriculture and public health departments. The chapter on the fundamentals of food chemistry is a full course in biochemistry, and the chapter on food machinery in its newer approach to the selection of such equipment is well worth the price of Volume I. Dr. Jacobs knows what is needed by the food plant operator and the food control official and has insisted upon ample references being given.

The value of this book is indicated by its well worn binding and dog-eared pages, and the pencil notes in the first edition of these tomes in the office of the reviewer. A brief index is appended to this volume, but a complete index is promised at the end of Volume III.

This book is recommended.

FERDINAND A. KORFF

Personal Health and Community Hygiene—*By Harold S. Diehl and Ruth E. Boynton. New York: McGraw-Hill,* 1951. 469 pp. Price, $4.50.

This is a revision of the author's *Healthful Living For Nurses,* which was published in 1944. In order to meet the demand for greater emphasis on community health problems and services, this new volume has added chapters on The Control of Communicable Diseases; Animals, Insects and Disease; Sanitation and Health; Health in School and on the Job; Government and Health; Voluntary Health Services; and Health in the Future.

The material in this new text is authoritative and sound, interestingly presented and attractively bound. Facts, figures, and references have been brought up to date and new developments in the health field given due recognition.

An added feature which should make this text more useful is the series of five teaching films made available by the publishers to supplement the text in the following areas: Body Care and Grooming; Nose, Throat and Ears; The Body Fights Bacteria; Human Reproduction; and Emotional Health.

In the opinion of the reviewer this should prove to be a very successful and effective text for nurses in the field of personal and community health.

DEAN F. SMILEY

The Board Members' Manual—How To Produce and Use It in Board Education—*By Charlotte K. Demorest. New York: National Publicity Council,* 1951. 28 pp. Price, $1.00.

This booklet can be accepted with confidence by a busy health officer or a hard pressed executive as a guide to the preparation of a board members' manual. Everything is thoughtfully considered and nothing of importance left out. It can be read in an evening. The breezy and simple clear-cut style and the enthusiasm of the guide should serve as an example to an agency of what its own manual should be like.

In preparing this guide, board members' manuals were collected from agencies all over the country. Sixty of these were given intensive study, and some

excellent illustrations were chosen from among them.

The use of a board members' manual and the various ways of participation by the board in the planning and writing are discussed. Content is given the greatest amount of attention. Suggestions for format are for the most part limited to criteria of flexibility, variety, and arrangement of material. The summary questionnaire at the end of the booklet is indeed a test for the standards of a well composed board members' manual.

MARY F. CHAMPLIN

Orthopedic Nursing—*By Frederick J. Knocke and Lazelle Knocke. Philadelphia: Davis,* 1951. 682 pp. Price, $5.00.

The main text of this book contains descriptions of and directions for special nursing skills necessary for the care of the orthopedic patient. Although these orthopedic nursing skills have developed by practice on the orthopedic patient, the basic principles may be applied to the care of any patient.

Included in the text are also descriptions of the various services that provide total and continuous care of the patient with an orthopedic disability. This material was contributed by specialists.

Helen Haladnak of Teachers College, Columbia University, writes on the psychological implications of orthopedic disabilities. Her article is practical and is organized according to the problem in a specific situation. Elizabeth Addoms, curriculum director in physical therapy, New York University, defines physical therapy and tells about the use of different modalities employed in helping the patient to help himself. Occupational therapy and its application is ably discussed by Edith H. Brokaw, staff member, Occupational Therapy Training Division, Columbia University.

Marion Kerr, formerly of Brooklyn Visiting Nurse Association, presents the chapter on community nursing, in which she shows how orthopedic nursing skills and knowledge may be applied to home situations. The hospital nurse will appreciate this chapter, for it tells her what happens to the patient after he leaves the hospital. The chapter on teaching the disabled patient activities necessary in daily living is done by Mary Eleanor Brown, director of Cerebral Palsy and Rehabilitation Services, Schenectady, N. Y. She tells a great deal of it by excellent pictures. Col. N. Smith, director of the Institute for the Crippled and Disabled of New York, contributes information regarding rehabilitation services and the nurse's part in the rehabilitation of the orthopedically disabled patient.

The book is divided into units each of which is a block of instruction in a specific area. There is a wealth of information easily available because of this arrangement. There are many excellent illustrations and a most complete list of reference material following each chapter.

Every nurse will enjoy reading this book and it certainly should be included in every nursing school library.

ANNE PROCHAZKA

New Ways to Better Meetings—*By Bert and Frances Strauss. New York: Viking,* 1951. 154 pp. Price, $2.95.

Most social scientists agree with the author that "the average of group judgment is superior to most individual judgments . . . that when a problem involves a number of people, group thinking will produce better results than the thinking of one person."

Public health administrators would do well to study the many suggestions included in this book. Techniques are described to help organize group participation and to avoid the "dead hand habit and Robert's rules."

If one reads the advice of the Strauss's on how to run small meetings, large

meetings, and working conferences, one cannot help but become involved in some introspection. Your reviewer did ask himself whether or not he had been a "pigeon-holer," an "eager beaver," a "fence sitter," "wise-cracker," a "superior being," or just a "silent member."

Knowing how to treat such nuisance types of members might help one not only to conduct meetings effectively but also to conduct oneself properly when attending meetings as a member.

J. M. WISAN

Radioisotopes—Industrial Applications—*By G. H. Guest. New York: Pitman,* 1951. 185 pp. Price, $4.50.

This work covers the basic concept of atoms and their structure and the practical usefulness of radioisotopes, particularly in the industrial field but also in the field of hygiene and public health. Information is given on the production, rate of decomposition, and usefulness of various radioisotopes, and a list of such isotopes is included in an appendix.

A number of chapters are devoted to practical applications of radioisotopes in research in the fields of metallurgy, lubrication, ceramics, rubber, and chemicals. A short chapter is devoted to practical applications of radioisotopes to research in the health field. These include the tracing of pollution in the atmosphere and in streams, studies of the habits of disease vectors, such as mosquitoes, and industrial toxicology.

The sources of radioisotopes for various applications are discussed, as well as the operation of radioisotope laboratories and the precautions to be taken by workers in this field of research.

The author has assembled information that should be of interest to health officials who have not had modern courses in physics but who want to keep abreast of new developments in the increasingly important field of research through the use of radioisotopes.

WALTER D. TIEDEMAN

The Municipal Year Book, 1951—*Edited by Clarence E. Ridley and Orin F. Nolting. Chicago: International City Managers' Association,* 1951. 588 pp. Price, $10.00.

The purpose of the *Municipal Year Book* is to provide municipal officials with information on the current problems of cities throughout the country, with facts and statistics on individual city activities, and with analyses of trends by population groups. This, the 18th annual volume, follows its predecessors in format, with five general parts—governmental units, municipal personnel, municipal finance, municipal activities, and directories of officials. All sections have been brought up to date and, in addition, three new ones have been added—public housing, building inspection practices, and centralized purchasing by cities. Illustrative of the discussions of municipal activities is that on public health developments in 1950. Once again this section is written by Ira V. Hiscock, Sc.D. One of the outstanding values of this volume is "Sources of Information," which is a part of each section.

FRANCIS B. ELDER

The Neuroses. Diagnosis and Management of Functional Disorders and Minor Psychoses—*By Walter C. Alvarez. Philadelphia: Saunders,* 1951. 667 pp. Price, $10.00.

This volume by the Professor of Medicine, Emeritus, at the Mayo Foundation and the Mayo Clinic, summarizes a long and fruitful medical practice, with principal emphasis on the neurotic patient, or those patients whose troubles are likely to be functional. There are many practical hints to the physician which should make his approach far more significant than if he is limited to that which the pathologist and the laboratory report.

There is a specially interesting section on psychosomatic problems of several different specialties. Some day there will

be a chapter in a book like this about the psychosomatic problems encountered by public health physicians, but in the meantime all who deal with patients will find illumination and insight from these pages. There is a simplicity and a down-to-earth quality which is to be commended.

Many physicians have sought to distill a long experience. Few have succeeded as well as Dr. Alvarez.

REGINALD M. ATWATER

Health Instruction Guide—Tulare County Secondary Schools — *By Oliver E. Byrd and Burt M. Kebric, Editors. Visalia, Calif.: Tulare County Schools,* 1950. 151 pp. Price, $4.00.

At first glance one is impressed with this teaching guide. The units deal with timely subjects and the format is attractive. The introductory sections set forth principles for health teaching few would challenge. Analyses of interests and needs as they are locally revealed are given at the end. Closer examination, however, leaves one wishing for more specific help.

The body of the guide is divided into two parts, the first containing basic facts and problems for students, arranged by units, and the second, teaching outlines for each unit.

It is commendable that an attempt has been made to give the substance of health instruction. Nevertheless, the value of the basic facts would have been greatly enhanced if the material had been better documented so that those who wished to read further would know where to turn.

Each unit in Part II contains helpful lists of audiovisual aids and of local and national agencies. In place of specific teaching suggestions, however, one finds a common pattern of generalized statements repeated unit by unit without change, such as "writes for free and inexpensive materials" and "prepares and observes exhibits." Each unit ends with a list of magazine articles for students drawn heavily from popular magazines dating as far back as 1948.

There is a great need for teaching guides which have grown out of the experiences of teachers and which are rich with practical teaching suggestions of things which have been tried and have worked. It is hoped that this guide may be a stimulus to the teachers of Tulare County to join with their coworkers in public health in the development of such material.

RUTH E. GROUT

The Population of India and Pakistan—*By Kingsley Davis. Princeton, N. J.: Princeton University Press,* 1951. 263 pp. Price, $7.50.

This book, the fifth of the studies of major populations and the first one to deal with Asiatic people undertaken by the Office of Population Research in Princeton University from grants by the Milbank Memorial Fund and the Rockefeller Foundation, is an excellent, timely, and important contribution to demographic and sociological literature. It was a gigantic task for which the credit and congratulations go to Professor Davis, whose understanding of the problem without visiting the countries concerned is indeed surprising (particularly to an Indian) in the face of the foreigner's difficulty in scanning the complexity of problems in an Oriental setting.

The bibliography is extensive and the printing is excellent. The book is divided into six parts and 23 chapters, profusely illustrated and deals with the overall picture of Indian population, its growth, fight against death, fertility, natural increase, migration, social structure, social changes, and the author's suggestions for solution of the population problem. In his attempts to study this intricate Indian problem Professor Davis has done a thorough job. His admirable work should be welcome and should be

owned by all institutions and persons interested in demographic and sociological studies. Besides, the author's success in maintaining a dispassionate but sympathetic attitude in most of his discussions should have a special appeal to all readers and to Indians, in particular. Comparative figures on various aspects of demographic studies should make it popular with teachers and students alike.

Some of the conclusions of Professor Davis are as illuminating as they are useful for the proper understanding of India and Pakistan. For instance, contrary to general belief, he has shown that the rate of growth of population in these countries has not been as phenomenal in modern times as in the U.S.A., Chile, Japan, Germany, Great Britain, or Europe (including Russia). Due to India's massive population, even a moderate increase (1 per cent per year) means a high absolute increment, e.g., more than 85 million since 1920, for which the decline in death rate with no corresponding fall in birth rate is mainly responsible. Again, in dealing with the geographical and cultural setting the author concludes that despite great variation, the common basic culture is so widespread and so peculiarly Indian that partitioning of the country need not have happened.

In the concluding chapter the author sounds a note of warning that unless immediate measures are taken to restrict the population growth, it may result in perpetual poverty of the citizens or in absolute catastrophe. Of the various measures suggested, particular emphasis has been put on birth control. Although all may not fully agree with his policies, they are worth serious consideration. There are, however, a few points to which the author's attention may be drawn. For instance, the discussion on agricultural overcrowding could have been supplemented by the actual distribution of agricultural holding per person or family, in different areas, in relation to food production and food shortages. Similarly, he could also have discussed in more detail the influence of age at marriage and its universality in increasing the birth rate. Perhaps now it is easier in India to delay or divert people from marriage than to popularize contraception, which, under the existing conditions, will dwindle the middle class, the brain trust of India.

S. C. SEAL

Personnel Administration in Public Health Nursing — *By William Brody. St. Louis, Mo.: Mosby*, 1951. 209 pp. Price, $3.25.

The chief criticism I have of Mr. Brody's excellent and much needed book, *Personnel Administration in Public Health Nursing*, is that it does not go far enough. It might be called an introduction to personnel problems in public health nursing, but as it stands, the title is a bit ambitious. Also, emphasis is rather strongly on large official agency situations, when frequently the principle is applicable to any nursing staff anywhere, or should be expanded to fit a one-nurse agency. For example, one wonders what would happen if rural nurses were paid time and a half for *all* overtime work. It is, however, the first time a personnel administrator has tackled the subject and as a whole, all the material is valuable and highly useful to us. The N.O.P.H.N. personnel policies are cited generously.

One of the best chapters in this book is "Learning All the Time," Chapter 6, while I consider Chapter 11, the last chapter, the weakest, containing mere generalities.

There are a few surprising omissions: no organization charts to give some general idea of administrative relationships (board and committee members will miss these); the references on recruitment and aids from national sources are weak; there is no description—and this is sur-

prising as Mr. Brody has used it—of the group interview as a means of personnel selection.

In the section on examination questions, Mr. Brody has not pointed out the unsatisfactory questions—rather he has left that to the discernment of the reader. An examination expert will quickly see them, the novice might well overlook them. There also are a few errors of fact. We do not think of 1877 as the "origin of public health nursing" (page 19). It is miliary tuberculosis, not military (page 190). Question No. 46 has two answers (page 189). Question No. 85 probably has three equally good answers (page 194). The last set of questions (page 194) do not represent a discriminating device because several of the drugs have three, even four, "effects." It is almost a matter of personal choice. The directions are obscurely worded. It is unfortunate that poor examples of test questions are used in a book of this sort, without comment. I think Mr. Brody is too moderate also in his criticisms of wrong methods of administration; especially, he should condemn outright the bad practices and abuses of the Merit System (for example, provisional appointments, page 63).

The book, however, has many good points. I like the inclusion of references within the paragraph—the details appearing in an appendix, though it is going to be a little difficult to pick up these references at a later reading; the forms copied from other agencies are useful; the author's descriptions of merit system methods and procedures seem clear, inclusive and very useful; private agencies will do well to study the selective methods (and reasons) used in appointing personnel; and because of the orientation of nursing in civil service agencies, the book should be read by all administrators, including those in the hospital field, even though there is but casual reference to nursing service in hospitals. Indeed, I could wish that Mr. Brody had taken more time to do a thorough job of describing personnel administration in nursing services of all types and had had a nurse write the book with him to supply pertinent and explanatory material. However, this is not to say that the book is impractical or inapplicable to nurses. It is the best statement on the subject to date and should be in the hands of every nursing administrator, executive and supervisor.

DOROTHY DEMING

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ALLERGY IN RELATION TO PEDIATRICS. Bret Ratner. St. Paul, Minn.: Bruce Publishing, 1951. 227 pp. Price, $3.75.

BETTER HALF OF YOUR LIFE. Charles H. Lerrigo. New York: John Day, 1951. 266 pp. Price, $3.50.

CHILDREN AND YOUTH IN A WORLD IN CRISIS. Coördinated Conferences on Guidance, Personnel Services, and Health, Sponsored by the University of Wisconsin and the State Board of Health. Madison, Wis.: Kramer Business Service, 89 pp. Price, $1.50.

COLOR ATLAS OF MORPHOLOGIC HEMATOLOGY. Geneva A. Daland. Cambridge, Mass.: Harvard University Press, 1951. 72 pp. Price, $5.00.

DEVIATED CRIMINAL SEX OFFENDER. Report of the Governor's Study Commission. Detroit, Mich., 1003 Cadillac Square Building, 1951. 245 pp. Limited quantity.

DIABETES CONTROL. Edward L. Bortz. Philadelphia: Lea & Febiger, 1951. 260 pp. Price, $3.50.

DIE AMERIKANISCHEN EINHEITSVERFAHREN ZÜR UNTERSUCHUNG VON WASSER UND ABWASSER. (German Translation of Standard Methods for the Examination of Water and Sewage—American Public Health Association Publication, *9th ed.*) F. Sierp and Karl Imhoff. Munchen: Verlag Von R. Oldenbourg, 1951. 314 pp.

EXPERIMENT IN DENTAL CARE. John T. Fulton. World Health Organization Monograph Series No. 4. New York: Columbia University Press, 1951. 87 pp. Price, $1.00.

FINLAY. Cesar Rodriguez Exposito. Havana, Cuba: Editorial Libreria Selecta, 1951. 338 pp. Price, $5.00.

INSERVICE TRAINING COURSE IN RADIOLOGICAL HEALTH. Lectures Presented Feb. 5, 6, 7, and 8, 1951. Ann Arbor: University of Michigan, School of Public Health. 139 pp. Price, $3.00.

LET'S HAVE HEALTHY CHILDREN. Adelle Davis. New York: Harcourt Brace, 1951. 293 pp. Price, $3.00.

MANUAL OF TUMOR NOMENCLATURE AND CODING. AMERICAN CANCER SOCIETY. New York: American Cancer Society, 47 Beaver Street, 1951. 119 pp. Price, $2.50.

PLANNED PARENTHOOD. Abraham Stone and Norman E. Himes. New York: Viking, 1951. 214 pp. Price, $3.75.

MATERNAL NUTRITION AND CHILD HEALTH. Kirsten U. Toverud, Genevieve Stearns, and Icie G. Macy. Washington, D. C.: National Research Council, Food and Nutrition Board, 1950. 136 pp. Price, $2.00.

PROCEEDINGS OF THE FIRST RESEARCH CONFERENCE ON PSYCHOSURGERY. Public Health Service Publication No. 16. Washington: U. S. Govt. Ptg. Office, 1951. 173 pp. Price, $1.00.

PSYCHOLOGICAL DYNAMICS OF HEALTH EDUCATION. Proceedings of the Eastern States Health Education Conference, April 13–14, 1950. New York: Columbia University Press, 1951. 134 pp. Price, $2.50.

PUBLIC HEALTH NURSE AND HER PATIENT. Ruth Gilbert. Cambridge, Mass.: Harvard University Press, 1951. 327 pp. Price, $3.75.

RHYTHM WAY TO FAMILY HAPPINESS. John D. Laux. Elmira, N. Y.: The Rhythm Indicator, 1951. 212 pp. Price, $3.00.

SIMPLIFIED NURSING. Florence Dakin and Ella M. Thompson (5th ed.). Philadelphia: Lippincott, 1951. 714 pp. Price, $4.00.

SOCIAL CASE WORK, THEORY AND PRACTICE. Gordon Hamilton (2nd ed. rev.). New York: Columbia University Press, 1951. 317 pp. Price, $4.00.

YOUR HAY FEVER AND WHAT TO DO ABOUT IT. Harry Swartz. New York: Funk & Wagnalls, 1951. 175 pp. Price, $2.75.

UNDERSTANDING YOUR SON'S ADOLESCENCE. J. Roswell Gallagher. Boston: Little, Brown, 1951. 209 pp. Price, $3.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Making It Unanimous—By a large-scale demonstration ably controlled and followed up, the British Medical Research Council confirms our many findings that whooping cough can be prevented. Though all three vaccines established their usefulness in this research, the Michigan Department of Health product gave a considerably greater degree of protection than those from commercial sources.

ANON. The Prevention of Whooping Cough by Vaccination. *Brit. M. J.* 4721:1463 (June 30), 1951.

Skillful Reporting—To make head or tail of the ideas offered during a day-long conference of 36 various member agencies upon a topic so involved and heterogeneous as national defense calls for discernment to the *n*th degree. Orchids should go to this reporter, or these reporters, unnamed. An experienced British contributor said, "From a public health view, we disliked community shelters." He told why.

ANON. The Challenge to Voluntary Health Agencies. *Pub. Health Rep.* 66, 26:823 (June 29), 1951.

Case Against Summer Injections—Findings here are based upon an analysis of 2,709 case histories, of which 85 included an antigen injection within 6 months antecedent to a polio attack. The 33 who had received some kind of antigen shot during the 30 days prior to onset revealed a high degree of correlation between sites of paralysis and injection. There was no evidence that immunization generally increases chance of polio attack.

ANDERSON, G. W., and SKAAR, A. E. Poliomyelitis Occurring After Antigen Injections. *Pediatrics* 7, 6:741 (June), 1951.

Why Not?—A British M. O. H. suggests that future health officers go directly from their basic medical training to postgraduate instruction in public hygiene, since their "future must in the main be built up in the field which lies outside the hospital wall." He offers this idea as one way of meeting the shortage of medical candidates—which plagues British public health administration as it does ours.

CAMPBELL, F. W. "A House Divided." *Pub. Health* 64, 8:144 (May), 1951.

Good Record—Compared to maternal death rates of only a short generation ago, New York's rates of 1.1 (in 1948) and 0.9 (in 1949) per thousand births seem phenomenal. They can be further improved, says the writer, by maintenance of adequate blood banks, routine blood grouping and typing, better antepartum care, wider cardiologic consultation, and newer anesthetic practices.

FAIRSON, J. B. Maternal Deaths in New York During 1948 and 1949. *J.A.M.A.* 146, 15:1393 (Aug. 11), 1951.

Athletic Hazards—This is only very faintly a concern of public health, but some day you may want to know whether boxing kills more people than football or baseball, for instance. The grisly records of a lot of other sports are also covered.

GONZALES, T. A. Fatal Injuries in Competitive Sports. *J.A.M.A.* 146, 16:1506 (Aug. 18), 1951.

"We May Have Something To Learn"—From this eye-witness account of public health and welfare centers in Paris—conducted in ways as foreign to our methods as the French language sounds to our provincial ears—three curious items, among many, are culled for your edification: (1) "Very substantial bonuses are paid under the social security system to mothers who breast-feed their babies." (2) At foyers (clubs for old people) two substantial meals are served each day for 20 francs. (3) "Immunization with BCG has been made compulsory in France by a law passed in 1950."

HARDING, W. G. Notes on Public Health and Welfare in Paris. *M. Officer* (Brit.) 85, 24:239 (June 16), 1951.

Not Totally Ignored—If these four papers are any evidence, the authorities in New York State and City are at least thinking ahead in the matter of disaster relief. Is it just possible that you might be helped by knowing the direction their planning is taking?

HILLEBOE, H. E. Organization and Operation of Medical Defense Activities. *New York State J. Med.* 51, 13:1603 (July 1), 1951.

Child of the Public Drinking Cup—Almost everything that has been said against the public drinking fountain is reviewed here, with more to come from studies or observations that haven't yet been published.

INGRAM, W. T. The Drinking Fountain and Possible Disease Hazards. *Modern San.* 3, 8:53 (Aug.), 1951.

Age, Sex and Acute Illnesses—It would seem that almost anything you

might want to know about disabling illnesses among employed adults you would find in this morbidity study.

JACKSON, E. H. Duration of Disabling Acute Illness Among Employed Males and Females—Eastern Health District of Baltimore 1938–1943. *Milbank Mem. Fund. Quart.* 29, 3:294 (July), 1951.

Pity the Poor Taxonomist—You may be mildly, or wildly, interested when told that some bacteriologists are reporting that many bacteria are able to assume a filterable form. The granular stage is of the same order of size as the larger viruses. When the granular phase reverts to the bacterial phase, altered races may emerge, better adapted to the new environment than the parent stock. Thus is confusion compounded for you.

KLIENEBERGER-NOBLE, E. Filterable Forms of Bacteria. *Bact. Rev.* 15, 2:77 (June), 1951.

Multiple Screening Examined—Not to be missed is this discussion of future uses of screening mechanisms for the detection of detectable chronic diseases—projects in which *all* voluntary and official agencies concerned would join in maintaining. Some much-needed definitions are offered.

LEVIN, M. L. Detection of Chronic Disease. *J.A.M.A.* 146, 15:1397 (Aug. 11), 1951.

The Sexes at Birth—With a fine display of demographic objectivity this paper examines some popular assumptions about sex ratios and social phenomena. Subjected to the test of national birth statistics are three hypotheses concerned with the effect of war, age of mother, and order of birth upon the ratio of boy to girl babies. It would be a shame to give away the findings here.

MCMAHAN, C. A. An Empirical Test of Three Hypotheses Concerning the Human Sex Ratio at Birth in the United States, 1915–1948. *Milbank Mem. Fund Quart.* 28, 3:273 (July), 1951.

Patients Are People—Though quite clearly addressed to tuberculosis workers, this paper about patients' reactions to institutional care and outside social pressures may have a lot in it for any one of us who has to deal in his day's work with a succession of human beings each one of whom is torn by emotions and problems of his own.

MILLER, P. Medical Social Service in a Tuberculosis Sanatorium. *Pub. Health Rep.* 66, 31:987 (Aug. 3), 1951.

He Doesn't Like BCG—Five good reasons why BCG should not be employed seem to be enough for this author—in view of the fact that our widely adopted control measures are doing the trick without it.

MYERS, J. A. Prevention of Tuberculosis Among Children Without the Use of BCG. *Pediatrics* 7, 6:793 (June) 1951.

Epidemiology of Malnutrition—Whenever I read or hear a word new to me, I hasten to share the discovery with others similarly benighted. This time it is an imported word: "nutriture." It is the state of a body or cell resulting from the nutrition of that body or cell. Nice word, isn't it? The accompanying discussion of nutrition survey pitfalls is not to be missed.

SINCLAIR, H. M. Nutritional Surveys of Population Groups. *New England J. Med.* 245, 2:39 (July 12), 1951.

M C H—Four useful papers on prematurity and what is being done about the matter in New York City, Chicago, and across the nation. The last paper says that accepting 2,500 gm. as the sole criterion of prematurity is not sound practice.

WALLACE, H. M., *et al.* Pilot Study of Maternal and Neonatal Factors in Premature Infant Mortality (and three related papers). *J.A.M.A.* 146, 10:886 (July 7), 1951.

ASSOCIATION NEWS

SEVENTY-NINTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
SAN FRANCISCO, CALIF., OCTOBER 29–NOVEMBER 2, 1951

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B. G. Rothman, M.D., Box 146, Window Rock, Ariz., Acting Area Medical Officer, Bureau of Indian Affairs

Louis E. Schaefer, M.D., 144 Bard Ave., Staten Island, N. Y., Medical Director, Staten Island Medical Center, Health Insurance Plan of Greater New York

Joseph A. Soffel, M.D., 4800 Friendship Ave., Pittsburgh, Pa., Editor, *Pittsburgh Medical Bulletin*

George E. Spencer, M.D., 2851 Bedford Ave., Pittsburgh 19, Pa., Physician-in-Charge, Medical Services, Tuberculosis League Hospital, Assoc. Editor, *Pittsburgh Medical Bulletin*

Arthur Waldman, 931 Penn Ave., Pittsburgh 22, Pa., Exec. Director, United Vocational and Employment Service

Unaffiliated

Beryl B. Anderson, R.N., 1790 Broadway, New York, N. Y., Field Consultant, Case Finding, National Tuberculosis Assn.

Frederic C. LeRocker, M.H.A., San Jose Hospital, San Jose 14, Calif., Asst. Administrator

Lonic W. Liverman, 5565 Keynote St., Long Beach 8, Calif., Medical Social Consultant, Dept. of Public Health

George Rice, M.D., 371 Commonwealth Ave., Boston 15, Mass., Physician

A.P.H.A. AFFILIATED SOCIETIES

Arizona

Public health services in relation to the activation of a state plan for civil defense keynoted panel discussions at the 21st Annual Meeting of the Arizona Public Health Association, held in Mesa May 17–18. A resolution was passed calling for a special session of the legislature to consider immediate appropriation of funds for a state civil defense program. Low salaries of public health workers also formed the basis for a resolution passed by the Association. New officers were elected as follows:

President—Roy N. Jones, Bacteriologist in Charge, Phoenix Health Dept. Laboratory
President-Elect—Frank R. Williams, Director of Health Education, State Health Dept.
Vice-President—Teresa Oakey, Tucson
Secretary—Dora K. Robinson, Phoenix Health Dept.
Treasurer—Beatrice Ezell, Phoenix

James P. Ward, M.D., State Director of

Public Health, was again elected to represent the Arizona society on the A.P.H.A. Governing Council.

Colorado

The 1951 Annual Meeting of the Colorado Public Health Association was held on June 7 and 8 in Estes Park. The following officers were elected at that time:

President—J. Robert Cameron, Director of Environmental Sanitation, Denver Bureau of Health and Hospitals
Vice-President—Margaret Beaver, M.D., Director, Mesa County Health Dept.
Secretary—Graydon Dorsch, Executive Secretary, Denver Tuberculosis Society
Treasurer—Norma Johannis, Director of Health Education, State Health Dept.

California

At the Annual Meeting held on June 1, the following officers were elected by the Northern California Public Health Association:

President—Harold Chope, M.D., Director, San Mateo County Dept. of Public Health and Welfare.
President-Elect—Rena Haig, Chief, Bureau of Public Health Nursing, State Dept. of Public Health.
Vice-President—Thomas McGowan, Public Health Engineer, San Jose City Health Dept.
Secretary—Christine Mackenzie, State Dept. of Public Health, Bureau of Public Health Nursing.
Treasurer—Fern E. French, Lecturer in Public Health, School of Public Health, University of California.
Representative on Governing Council A.P.H.A.—Margaret Beattie, Assistant Professor, School of Public Health, University of California.
Representative on Regional Board Western Branch A.P.H.A.—Myron W. Husband, M.D., District Health Officer, Del-Norte-Humboldt Health Dept.

Connecticut

The Annual Meeting of the Connecticut Public Health Association was held at the Yale University Department of Public Health on May 9. The number registering for the various sessions was 275. The officers that will serve for the ensuing year are:

President—Sterling P. Taylor, M.D., Health Officer, North Haven
President-Elect—Friend Lee Mickle, Sc.D., Director Bureau of Laboratories, State Dept. of Health.
Vice-President—Leonard Parente, M.D., Health Officer, Hamden
Secretary—Harry Auerbach, Assistant Professor of Public Health, Yale Dept. of Public Health.
Treasurer—Marian L. Arnold, Director, Connecticut Dairy and Food Council.

Idaho

The 1951 Annual Meeting of the Idaho Public Health Association, held May 28–29 in Pocatello, was attended by close to 200 persons. The following new officers were elected:

President—Raymond L. White, M.D., Boise.
1st Vice-President—Helen Bailey, Twin Falls.
2nd Vice-President—Joe Latimore, Coeur d'Alene.
3rd Vice-President—Etta Lee, Idaho Falls.
4th Vice-President—S. D. Simpson, M.D., Caldwell.
5th Vice-President—E. B. Knopp, St. Maries.
Secretary—A. W. Klotz, Boise.
Treasurer—Frances Goodwin, Boise.

Massachusetts

At the annual banquet of the Massachusetts Public Health Association held in Northampton on June 14, the following officers were elected for the ensuing year:

President—Clarence L. Scamman, M.D., Medical Director, Massachusetts Division, American Cancer Society.
President-Elect—John E. Gordon, M.D., Epidemiology Professor, Harvard School of Public Health.
Vice-President—Sophie C. Nelson, Director, Nursing Bureau, John Hancock Life Insurance Company.
Treasurer—Autino Fiore, M.D., Commissioner, Cambridge Dept. of Public Health.
Recording Secretary—Helen H. Gillette, Chief Laboratory Bacteriologist, Massachusetts Dept. of Public Health.

DR. TERRIS LEAVES A.P.H.A. STAFF

Milton Terris, M.D., M.P.H., who has served for five years on the staff of the American Public Health Association, most recently as Staff Director, Subcommittee on Medical Care, with offices in Bethesda, Md., has resigned effective September 20, to become Assistant Dean in Charge of Postgraduate Education at the University of Buffalo School of Medicine.

During his service with the Association Dr. Terris organized studies of medical care programs in the State of Maryland and in a number of other localities, including the Virgin Islands. He served also as Secretary of the Medical Care Section from its inception. Previous to joining the staff of the American Public Health Association Dr. Terris was a staff member of the New York State Department of Health.

Dr. Dean A. Clark, Chairman of the Subcommittee on Medical Care of the Committee on Administrative Practice, has expressed his appreciation to Dr. Terris for outstanding service, and Dr. Hugh R. Leavell, Chairman of the Executive Board of the Association on behalf of the Board, has thanked Dr. Terris for loyal and effective work.

HOTEL RESERVATION FORM

MAIL TO: A.P.H.A. Housing Bureau
Room 200, 61 Grove Street
San Francisco 2, Calif.

Single rooms are very scarce. Please indicate if you would be willing to share a twin-bedded room with another member.
Yes ..... No .....

PLEASE MAKE RESERVATIONS NOTED BELOW:

First Choice ..... Hotel
Second Choice ..... Hotel
Third Choice ..... Hotel

Arrival: ....., at ..... a.m. ..... p.m.
Departure: ....., at ..... a.m. ..... p.m.

..... Single room @ $ .....
..... Double room @ $ .....
..... Twin-bedded room @ $ .....
..... Parlor, bedroom suite @ $ .....

NAMES OF ALL OCCUPANTS:

.....
.....
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ADDRESSES:

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CHECK FOR $..... (MADE PAYABLE TO A.P.H.A. HOUSING BUREAU) IS ENCLOSED TO BIND THIS RESERVATION.

MAIL CONFIRMATION TO: Signed: .....

Address: ..... City Zone State

A STAMPED, SELF-ADDRESSED ENVELOPE WOULD BE APPRECIATED.

79TH ANNUAL MEETING

San Francisco, Calif., Oct. 29–Nov. 2, 1951

A HOUSING BUREAU has been organized for the 79th Annual Meeting of the A.P.H.A. in San Francisco, October 29 to November 2. Since all requests for rooms are handled in chronological order, it is recommended that you send in your application as quickly as possible.

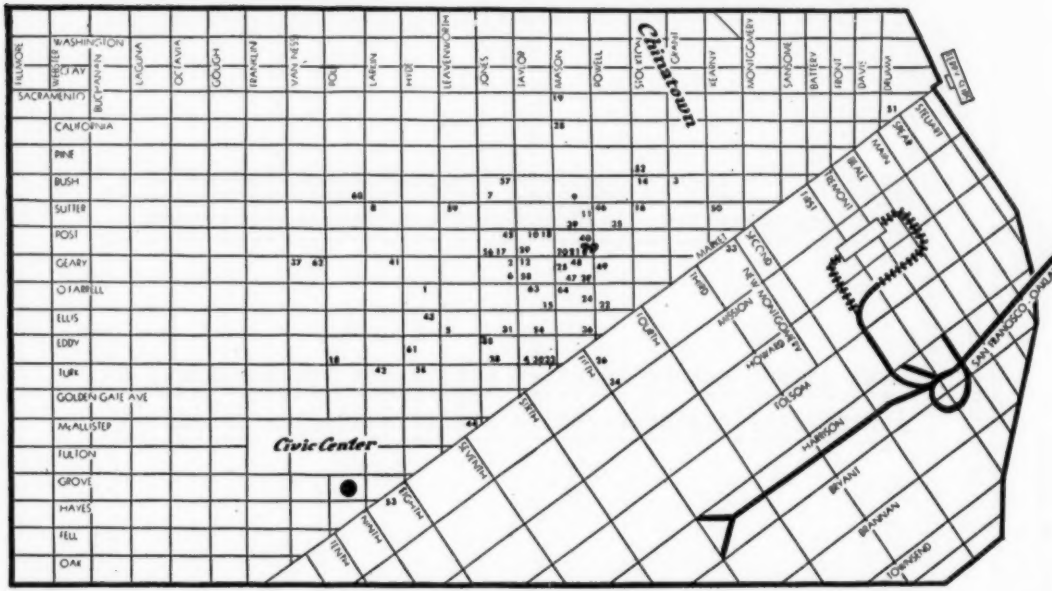
PLEASE COMPLETE THE APPLICATION FORM ON PAGE 1314 GIVING *ALL* INFORMATION REQUESTED.

HOTELS HOLDING ROOMS FOR A.P.H.A. AND RATES.

Map	Hotel	Single	Double Rooms: Double Bed	Double Rooms: Twin Beds
1	Alexander Hamilton *	$5.00–10.00	$ 6.00–10.00	$ 7.00–10.00
2	Bellevue *	5.00– 6.00	7.00– 8.00	7.00– 9.00
3	Beverly Plaza	4.50– 6.00	6.50– 8.00	6.50– 8.00
57	Biltmore	4.00–	5.00	6.00
4	Brayton	2.50– 3.00	3.00– 4.00	4.50– 5.00
6	Californian *	4.00– 5.80	6.00– 7.30	6.50– 8.30
7	Canterbury	4.00– 5.00	6.00	7.00– 8.00
8	Carlton	3.00– 3.50	5.00– 5.50	6.00
9	Cartwright	4.00– 5.00	6.00	7.00
10	Cecil	4.00– 5.00	5.00	6.50– 7.00
11	Chancellor	4.50–	6.00	7.00
12	Clift *	7.00–12.00	9.00–15.00	10.00–18.00
59	Commodore	4.00– 5.00	6.00– 7.50	7.00– 8.50
15	Crest	3.00– 4.50	4.00– 5.50	5.50– 6.50
16	Devonshire *	4.00–	5.00	6.00
16	Drake Wiltshire *	5.00– 6.00	6.00– 7.00	8.00– 9.00
17	El Cortez	3.50– 6.00	4.50– 7.00	6.00– 8.00
18	Embassy	3.50–	4.00	5.00
19	Fairmont *	8.00–13.00	11.00–16.00	11.00–16.00
20	Fielding	4.00– 6.00	5.00– 8.00	6.00– 8.00
21	Franciscan	2.50– 4.00	4.00– 5.00	5.50– 6.00
22	Golden State	3.00– 3.50	4.00– 5.00	6.00
23	Governor	3.00– 3.50	4.00– 5.00	6.00
60	Harcourt	3.00– 3.50	3.50– 4.00	5.00
24	Herbert	3.50– 4.00	4.00– 5.00	5.00– 6.00
25	King George	3.00– 4.00	4.00– 5.00	5.00– 6.00
61	Lafayette	4.00–	5.00	6.00
62	Lombard	4.00– 6.00	5.00– 8.00	6.00– 8.00
27	Manx *	3.50– 4.00	4.50– 5.00	6.50
28	Mark Hopkins *	8.00–11.00	11.00–15.00	11.00–15.00
31	Olympic *	3.50– 6.00	4.50– 6.00	6.00– 8.00
32	Oxford	3.00– 4.00	4.00– 6.00	6.00
33	Palace *	6.00–12.00	9.00–14.00	10.00–15.00
63	Palomar	3.50– 5.00	4.00– 6.00	4.50– 6.00
34	Pickwick *	3.50– 5.00	4.50– 6.00	5.50– 6.50
35	Plaza	5.00– 6.00	6.50– 8.50	7.00– 9.00
38	Roosevelt	3.00– 4.00	3.50– 5.00	6.00
39	St. Andrews	3.00–	3.50– 4.00	5.00
70	St. Francis *	6.00–14.00	8.00–14.00	10.00–18.00
42	Senate	3.00– 4.00	4.00– 5.00	5.00– 6.00
43	Senator	3.00– 3.25	3.50– 3.75	4.50– 5.00
44	Shaw	3.50– 4.00	4.50– 5.00	6.00– 6.50
45	Sheldon	3.00– 4.00	4.00– 5.50	5.50
46	Sir Francis Drake *	6.50–11.00	8.50–13.00	10.50–15.00
47	Spaulding	3.00– 4.00	4.00– 5.00	5.00– 6.00
48	Stewart	3.50– 5.00	5.00– 6.00	6.00– 9.00
49	Stratford	3.00– 4.00	3.50– 6.00	5.00– 6.00
50	Sutter *	3.00– 4.50	4.50– 7.00	6.00– 8.00
64	Travelers	3.50– 4.00	5.00– 5.50	6.00
52	Victoria	3.50– 4.00	4.50– 5.00	5.00– 6.00
53	Whitcomb *	4.50– 7.00	6.00–10.00	7.00–10.00
55	Y.M.C.A. Hotel	1.30 up		2.60 up
56	York	3.00– 4.00	3.50– 5.00	5.00– 6.00

* Parlor suites available. Rates on request.

Street Plan of San Francisco Showing Location of Housing Bureau Hotels



Hotel Reservation form is on page 1314. Please indicate your first, second, and third choice hotel. Single rooms are limited.

All reservations will be confirmed if requests are received not later than October 15.

ALL REQUESTS MUST BE ACCOMPANIED BY A DEPOSIT CHECK of $5 per person, or $10 per room, made PAYABLE TO THE A.P.H.A. HOUSING BUREAU. The deposit holds the room on your arrival day, regardless of the hour, and will be credited to your account. PLEASE DO NOT SEND U. S. POSTAL NOTES OR CASH.

Key

1 Alexander Hamilton
2 Bellevue
3 Beverly Plaza
57 Biltmore
4 Brayton
5 Cadillac
6 Californian
7 Canterbury
8 Carlton
9 Cartwright
58 Casa Nova
10 Cecil
11 Chancellor
12 Clift
59 Commodore
14 Court
15 Crest
16 Devonshire
16 Drake Wiltshire
17 El Cortez
18 Embassy
19 Fairmont
20 Fielding
21 Franciscan
22 Golden State
23 Governor
60 Harcourt
24 Herbert
28 Huntington
25 King George
61 Lafayette
26 Lankershim
62 Lombard
27 Manx
28 Mark Hopkins
30 New Dalt
31 Olympic
32 Oxford
33 Palace
63 Palomar
34 Pickwick
35 Plaza
36 Powell
37 Richelieu
38 Roosevelt
39 St. Andrews
70 St. Francis
41 San Carlos
42 Senate
43 Senator
44 Shaw
45 Sheldon
46 Sir Francis Drake
47 Spalding
48 Stewart
49 Stratford
50 Sutter
51 Terminal
64 Travelers
52 Victoria
53 Whitcomb
54 William Penn
55 Y.M.C.A. Hotel
56 York

54 William Penn
55 Y.M.C.A. Hotel
56 York
6 Californian
7 Canterbury
8 Carlton
POSTAL
NOTES OR CASH.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Staff Public Health Nurse—by the Rochester-Olmstead County Health Unit operating a coöperative community program between the city health department, the public schools and the county. Combined population 47,000. Health-conscious community, with excellent clinical and research facilities. Health Department has full-time health officer, health educator, social worker, sanitation staff, mental health staff, medical clinic, nutrition programs, public health nursing supervisor, assistant supervisor and director of student program, a mental health consultant nurse, and 12 qualified staff nurses. Generalized public health nursing program including school work and bedside care on a demonstration and supervision basis. Also an active student program in coöperation with the University of Minnesota School of Public Health and the State Department of Health. New public health center. Degree and minimum public health training. Car optional; mileage 7½¢ per mile. Salary adjustable within range, depending on experience and qualifications. Good personnel policies. Write to: Miss Dorothy E. Anderson, Supervisor of Public Health Nursing, Public Health Center, Rochester, Minn.

Medical Health Officer—for Shelby-Effingham County Health Department. Central Illinois location; good schools; excellent rural communities; salary range $6,900–9,000; may start above minimum. Must have capacity for good public relations. Write to Mr. J. H. Griffin, Teutopolis, Ill., or to Dr. O. G. Kauder, Findlay, Ill.

Director of Nurses—Demonstration Health Center, voluntary agency (population 100,000; nursing staff expected to be about 25 to 35) in large Eastern city. Combination nursing service now being planned. Salary dependent upon qualifications. Experience in supervision and Bachelor's degree required; M.P.H. or Master's desirable. One month vacation; 5 day week; sick leave; good retirement plan. Write: **Box Mi-4**, Employment Service, A.P.H.A.

Public Health Nursing opportunities in Oregon—state maternal and child health consultant, $322–294; county staff positions, $260–320. For complete details write to: A. T. Johnson, Personnel Director, Oregon State Board of Health, 1022 S.W. 11th Ave., Portland 5, Ore.

Qualified **Public Health Nursing Supervisors** and **Public Health Staff Nurses**—generalized program; combination nursing service now being planned; district staff will consist of approximately 8 nurses to serve an estimated population of 30,000 residents; 8 weeks graduate and undergraduate nurse-student affiliation; 5 day week; 12 working days vacation annually; sick leave; retirement system; work under qualified supervision; transportation furnished; salary range for staff nurses $2,730–3,276; supervisors, $3,276–3,952, with annual increments; service ratings annually. For information write to: E. M. Holmes, Jr., M.D., Richmond Dept. of Public Health, Richmond, Va.

Health Physicist—well established chemical manufacturers in Midwest have excellent opportunity for industrial hygienist or chemical engineer with experience in health physics. Submit full details of background and experience in letter to: **Box I-H-4**, Employment Service, A.P.H.A.

Public Health Physician—as Medical Director of Bi-County Health Department in Southwestern Illinois on Ohio and Mississippi Rivers. Important public health job to be done. Salary $7,000. Apply: Guy Jones, Secretary, Alexander-Pulaski Bi-County Board of Health, 1009 Walnut St., Cairo, Ill.

Health Officer—openings in Oregon, for Umatilla County, Pendleton; Tri-County District, Bend; Coos County, Coquille. Salary $7,800–8,400, depending on qualifications and location. M.P.H. preferred. For details write to: A. J. Johnson, Merit System Supervisor, Oregon Merit System Council, 1019 S.W. North, Portland, Ore.

Public Health Physician—to direct state-wide chronic disease program, including heart and cancer. M.P.H. required. Salary range $8,592–9,936; starting salary depending on training, experience. Write

to: Harold M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S.W. 11th Ave., Portland 5, Ore.

Administrative Assistant to County Health Officer (Montgomery County, Maryland, Health Department). Salary range $4,200–5,000. Under Merit System, including retirement plan. Administrative supervision of personnel, budget, accounting, supply, and office records and systems. This health unit is a suburban and rural county of 163,759 (1950 Census), adjacent to the District of Columbia. Community interest is strong, and there is active coöperation of lay groups. The unit contains 86 full-time employees. Candidates should have degree in public health, public administration, business administration, or related subjects. Some experience in a local health unit including public health education is desirable. Write to: County Personnel Board, Court House, Rockville, Md.

Medical Director—must be eligible for Wisconsin medical license and have training and/or experience in public health administration, preferably an M.P.H. degree. Generalized program; excellent quarters; laboratory; exceptional staff of 16. Salary $9,000 plus travel, vacation, etc. Active program could be extended further by a capable director. Opportunity for an M.D. with initiative. Director will have backing and support of a strong and interested Board. Write: Eau Claire City-County Health Dept., Safety Bldg., Eau Claire, Wis.

Nutritionist, degree in home economics, with major in food and nutrition, 1 year graduate study and 2 years experience. Starting salary $4,080; per diem and travel. Good working relationships established. Write: Director of Maternal and Child Health, Iowa State Dept. of Health, Des Moines 19, Iowa.

Health Officer—for city of 50,000. Training and experience necessary. Salary $7,360. Usual vacation, sick leave and retirement benefits. Diversified program in a progressive community. Write: A. J. McCarey, M.D., Northern Bldg., Green Bay, Wis.

District Supervising Nurse—Southwestern District Health Unit, Dickinson. Completion of a year's approved program of study in public health nursing, extensive experience in generalized public health nursing including assisting in supervisory or administrative functions. Entrance salary $3,600 plus liberal travel allowance. Write: R. O. Saxvik, M.D., State Health Officer, State Dept. of Health, Bismarck, N. D.

Public Health Physician—for attractive field office position, State Health Department; excellent civil service and retirement system; headquarters in university town, Southern Illinois. Salary range $6,900–9,520. Write: Roland R. Cross, M.D., Director, State Dept. of Public Health, Springfield, Ill.

Junior Medical Technologist—for public health laboratory. College degree. Salary $250–300.

Qualified **Supervising Nurse**—generalized public health nursing program. Salary $308–345.

Apply to: Charles A. Neafie, M.D., Director, Dept. of Public Health, Pontiac 15, Mich.

Nurses—Public health training program open to graduate nurses 20 to 30 years old, at $3,268 to $3,541 per year; other openings for trained public health nurses 22 to 35 years old, at $3,627 to $4,005. For Detroit Health Department, 40 hour week, annual increases, liberal sick leave, vacation, and pension privileges. Apply: Detroit Civil Service Commission, 735 Randolph St., Detroit 26, Mich.

Medical Health Officer—for Lawrence-Wabash County Health Department. Salary range $7,200–8,400, may start above minimum. Must have capacity for good public relations. Write: Roy R. Rucker, Secy-Treasurer, Lawrence-Wabash Health Dept., Lawrenceville, Ill.

Director of Nursing—60 bed general hospital. B.S. or B.A. required, also hospital nursing administration experience and public health nursing experience. Position later will be Director of Nursing in combined Hospital-Health Department. Starting salary $375. Social Security.

Laboratorian—to direct Clinical and Public Health Laboratory in 60 bed general hospital and County Health Department. Opportunities for development, research, and experimental work in collaboration with Michigan Department of Health. Require M.S. or Ph.D. Starting salary $350 to $400, depending on qualifications, with liberal increases based on performance.

Write: Vergil N. Slee, M.D., Barry County Health Center, Hastings, Mich.

Health Officer—for county of 80,000; good industrial and farming area. Experience required; M.P.H. desirable. Salary $9,000 plus travel. Write: I. J. Markel, M.D., Acting Director, Elkhart County Health Unit, 202 Harrison Street, Elkhart, Ind.; or L. E. Burney, M.D., State Health Commissioner, Indiana State Board of Health, 1330 W. Michigan St., Indianapolis 7, Ind.

Public Health Nurses—generalized program in suburban area. Staff education

and students; 5 day week, vacation, sick leave, and retirement benefits. Write to: Mr. R. G. Forbes, Personnel Director, The Court House, Arlington County, Virginia.

Staff Public Health Nurses—for rural counties in Nevada. Vacancy immediately. Salary range $290–330. Ten dollars yearly increment, 5 day week, 15 working day vacation, accumulative sick leave, retirement. Requirements 1 year of postgraduate public health nursing education in approved school and 6 months experience in official agency. Apply to: Mrs. Christie T. Corbett, R.N., State Supervisory Nurse, Nevada State Dept. of Health, 506 Humboldt St., Reno, Nev.

Supervisor of Nurses—generalized program with bedside care. Five days per week, vacation, sick leave, retirement program. Car furnished or reasonable allowance if personal car is used. Salary range $3,600–4,200, depending upon qualifications and experience. Write: Mr. Edward Peters, Acting Health Officer, City Health Dept., La Crosse, Wis.

Health Officer—for newly created Egyptian Health Department located in "Little Egypt" section of Southern Illinois and serving the counties of Gallatin, Saline, and White. Position to begin January 1, 1952, or as soon thereafter as possible. Candidate should be prepared to create and maintain a good program of local health service and should have capacity for excellent public and human relations. Salary will depend on experience and training. Write: Mr. Horace Brown, Secretary, Egyptian Board of Health, Shawneetown, Ill.

Experienced Health Educator—for Chicago and Cook County Tuberculosis Institute. Candidates should have public health background and experience. Salary open. Excellent opportunity for developing broad education in tuberculosis control programs in community, industry, and schools in coöperation with the official agency. For further information, write: John E. Egdorf, Executive Secretary, The Tuberculosis Institute of Chicago and Cook County, 1412 W. Washington Blvd., Chicago 7, Ill.

POSITIONS WANTED

Public Health Engineer—B.S. Public Health Engineering; 2 years construction engineering experience, 1 year sanitary design engineering, 1½ years water pollution control engineering. Interested in position with governmental or private agency. Write: **Box E-15**, Employment Service, A.P.H.A.

Married veteran, 31, seeks **public health education** position, New York City area, preferably $2,000 minimum. 50 graduate credits; public health education major in undergraduate and graduate school. Available September, 1951. Write **Box HE-38**, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

(If you will write for our ANALYSIS FORM, we shall prepare an individual Survey of opportunities which meet your requirements.)

OPPORTUNITIES AVAILABLE FOR THE FOLLOWING—(1) HEALTH OFFICER; town of 40,000, near university center; New England. (2) CHIEF NURSE; metropolitan health department; generalized nursing program; $6,000; Midwest. (3) TWO HEALTH EDUCATORS for large urban area and, also, one for diversified rural and urban population; East. (4) PUBLIC HEALTH PHYSICIAN; M.P.H. degree desirable; attractive location; California. (5) PUBLIC HEALTH NURSE to supervise health program for school district; $4,200–$4,800; Northern California. (6) PUBLIC HEALTH NURSE ADMINISTRATOR to direct program of one of country's leading philanthropic organizations; newly created post; woman of outstanding qualifications, well known in public health field, required; East. (7) EXECUTIVE SECRETARY; state tuberculosis association; experience in tuberculosis field desirable. (8) HEALTH COMMISSIONER; county health department; capable staff; Midwest; $10,000. (9) PUBLIC HEALTH NURSES to direct rehabilitation programs, large company; openings: New York, Midwest, South, Southwest. (10) REHABILITATION COORDINATOR; county health department; Midwest. (11) PUBLIC HEALTH COORDINATOR; important faculty appointment; university school; West. (12) PUBLIC HEALTH PHYSICIAN to direct university health service; well equipped infirmary; town of 80,000, South.

WANTED—OPPORTUNITIES FOR (a) PUBLIC HEALTH PHYSICIAN; M.P.H.; 7 years health officer, city health department; Diplomate, American Board of Public Health and Preventive Medicine; seeks greater responsibilities. (b) PUBLIC HEALTH NURSING ADMINISTRATOR; B.S. Public Health Nursing; M.A. Public Health and Industrial Nursing; 4 years Director Nursing Service, important public health agency. (c) PUBLIC HEALTH DENTIST; B.S., D.M.D., M.P.H., eastern university; year's dental internship; 5 years director of dental health, eastern metropolis. (d) HEALTH EDUCATOR; B.A., M.S., M.P.H., Ed.D. (Health Education and Administration), Columbia University and Harvard; 4 years teaching experience; 6 years director health education, state health organization. (e) PUBLIC HEALTH ENGINEER; B.S. Chemical Engineering, M.S. Sanitary Engineering; 12 years interesting experience, including 4 years in South America.

Please direct all inquiries to BURNEICE LARSON, THE MEDICAL BUREAU, PALMOLIVE BUILDING, CHICAGO.

NEWS FROM THE FIELD

WHO NEWS

The World's Greatest Health Need

"The World today demands more of its medical men than it ever has done before. They must still know how to cure, but they must also—and in ever greater measure—know how to prevent illness." These are the opening words of "The Doctors' Diagnosis" in the May-June-July issue of the *WHO News Letter*. The article is a report on a series of informal discussions held in Geneva during the Fourth World Health Assembly, in which health workers examined the system of training in the light of the world's needs. One recurring note was for a broader training of the physician in psychology, sociology, economics, and particularly in the role that engineers, social workers, and others can play both in medicine and even more in public health.

"The tablet that relieves the headache does not remove the social insecurity that may have been its cause. There is nothing in a bottle that can prevent overcrowding or end poverty. There is no room for a new drainage system in the doctor's bag.

"One thing is certain. Institutions for medical education must rid themselves of the isolation which now often surrounds them and they must become centres of learning, science, and skill that will train doctors more for collective than individual needs, doctors with more understanding of health questions in connection with the people's life and its social and economic conditions."

The *News Letter* is published monthly by the Division of Public Information, WHO, Geneva, Switzerland.

Expert Committee on Insecticides

A standard nomenclature and definition for dusting and spraying apparatus and specifications for a stirrup pump-type sprayer and for two kinds of hand dusting apparatus were adopted at a recent meeting of WHO's Expert Committee on Insecticides. In addition, a specification chart was adopted evaluating commercially available spraying equipment.

The committee met July30–August 4 in Savannah, Ga., at the technical development laboratories of the Communicable Disease Center, U. S. P. H. S., with all the laboratory facilities made available to it. The members of the committee, "citizens of the world," "not representatives of their respective governments," are:

A. L. Berti, engineer, chief, division of malariology, Maracay, Venezuela

S. H. Fryer, engineering department, Chemical Defense Experimental Establishment, Salisbury, England

Fred W. Knipe, engineer, Rockefeller Foundation

Alfred T. Lamierre, joint-director, National Experiment Station for Farm Machines, Paris

Dr. Rajinder Pal, assistant director, Malaria Institute of India, New Delhi

Dr. Samuel W. Simmons, scientist director, chief of technical development services, U.S.P.H.S., Communicable Disease Center, Savannah

World-wide Tuberculosis Campaign

A campaign, reportedly man's first world-wide attempt to control tuberculosis, has ended—only to be continued in another way. For four years the International Tuberculosis Campaign has been carried on jointly by UNICEF, the Danish Red Cross, Norwegian Relief for Europe, and the Swedish Red Cross. In 22 countries on 5 continents, 37,000,000 persons—children and young adults—have been tested and nearly 17,000,000 vaccinated against the disease.

The Scandinavian Societies have withdrawn, their commitments fulfilled.

The work will be continued by UNICEF and WHO, which has taken over technical responsibility for the campaign. Governments are being aided in organizing and carrying through campaigns, particularly in the heavily populated countries of Asia.

The campaign was made possible by a high degree of international coöperation. The State Serum Institute of Denmark was headquarters for the production of vaccine and the training of technicians, the Czechoslovakian Government supplied the millions of record cards, a U. S. Public Health Service scientist set up the record keeping system, and a U. S. Air Force plane was used to fly vaccine regularly to European and Mediterranean centers.

A recent UN news release tells dramatic stories of how this campaign was carried on in various parts of the world; elephant-loads of children brought to centers in India, camel-loads in Africa; workers flown into an isolated area in Ecuador by British missionaries, and many others.

As a part of the program, WHO established its Tuberculosis Research Office. This is keeping a statistical report of the tuberculin testing and vaccination in each country as a permanent record for international follow-up and comparison. Evaluation of the effect of mass BCG vaccination will thus be possible as well as clearer information on the problem of retesting. Special studies have also been carried on in numerous countries.

NEW DEAL FOR KEYSTONE PUBLIC HEALTH

On August 24 a historic event took place in Pennsylvania's state capital, Harrisburg. Surrounded by state officials, including the new health officer, Russell E. Teague, M.D., and representatives of state-wide health and civic organizations, Governor John S. Fine signed H 1310 and H 1376 and a number of companion bills. H 1310 provides for the voluntary establishment of county health departments; H 1376 sets up a merit system for public health personnel. Companion bills provide for turning over to the county departments, when organized, many functions now carried out by the State Health Department, thus making possible the decentralization of the state's health work.

The signing of these bills represented the culmination of a long campaign to "place Pennsylvania's health program where it belongs high up among the states of the Union." One of the early moves was the request in 1948 by the then governor and secretary of health for a public health study of the state by the American Public Health Association. Such a survey had been urged by the State Medical Society through its Special Commission on Preventive Medicine and Public Health of which Pascal Luchessi, M.D., was the chairman.

As the American Public Health Association's survey was being completed late in 1948, a number of citizens and citizen bodies organized the Pennsylvania Health Council. Its purpose was to study and publicize the survey and its recommendations and develop public support for putting the recommendations into effect. Many other organizations worked for the same goals—the State Medical Society, the Pennsylvania Citizens Association, the State Tuberculosis Association, the League of Women Voters, the P.T.A., among them. Condensed versions of the survey recommendations were distributed; citizen meetings called throughout the state. Each candidate for governor in 1950 pledged a reorganization of and improvement in the state's health services. The Law Schools of the Universities of Pennsylvania and Pittsburgh, together with the Pittsburgh School of Public Health, not only helped

to write the new laws, but are collaborating in codifying and revising the entire public health law of the state.

DR. HALVERSON LOANED TO U.S.P.H.S.

Wilton L. Halverson, M.D., director of public health of California, has been appointed to the regular Corps of the U. S. Public Health Service in the permanent grade of Medical Director. He is on a six month leave of absence to head a survey of the health and sanitation programs of 17 Central and South American countries. The survey is jointly sponsored by the Service and the Institute of Inter-American Affairs of the State Department. The major purpose of the survey is to appraise the influence of the I.I.A.A.'s nine year health and sanitation program on the development of local health organizations, the rate at which the programs and methods are being incorporated into the permanent health structure, and the extent to which the health habits of the people are being influenced.

Joint directors of the survey are Joseph W. Mountin, M.D., director of the Service's bureau of state services, and H. Van Zile Hyde, M.D., director of the health and sanitation division, I.I.A.A. The Service will staff and administer the survey with funds allotted by I.I.A.A.

Dr. Halverson is a Fellow of the American Public Health Association and chairman of its Committee on Administrative Practice, president of the United States-Mexico Border Health Association, past president of the State and Territorial Health Officers' Association, a member of the Scientific Board of the Rockefeller Foundation, and a member of the National Advisory Health Council, advisory group to the Surgeon General of the Public Health Service.

Also on the staff of the joint survey are:

Earl V. Bradsher, director, bureau of welfare administration, New York City Department of Welfare, public administration consultant

Edna Brandt, Public Health Service nurse

Dr. George Foster, director, Institute of Social Anthropology, Smithsonian Institution, for the cultural anthropology aspects of the survey

Joan Klebba, Health and Sanitation Division of the Institute, public health analyst

Richard Poston, who was formerly in charge of stream pollution control work for the southwestern United States, Public Health Service sanitary engineer.

HEALTH OFFICER FOR IOWA'S CAPITAL

Iowa's capital and largest city, Des Moines—population 177,000—has recently employed its first full-time health officer. He is Abraham Gelperin, M.D., Dr.P.H., formerly director of the Bureau of Venereal Diseases, New Haven (Conn.) Health Department. This now makes three full-time local health departments in the entire state, the other two being in Des Moines County with a population of 42,000, and in Washington County with 20,000. In the latter there has been a long-time vacancy in the health officer position. With the new department, nearly ten per cent of Iowa's population has organized itself for full-time local health services.

Of the nine supervisory state health district offices in the state all but two are currently without administrative health officers.

HONORARY A.H.A. MEMBERSHIP TO THREE

At the banquet of the 53rd Annual Convention of the American Hospital Association, Charles F. Wilinsky, M.D., president, welcomed to honorary membership, Leonard A. Scheele, M.D., Surgeon General of the Public Health Service, The Honorable Paul Martin, Canada's Minister of National Health and Welfare, and Herbert H. Schlink, M.D., founder and first president of the Australian Hospital Association.

At the same meeting Anthony J. J. Rourke, M.D., physician-superintendent

of Stanford University Hospitals, California, succeeded Dr. Wilinsky as president of the American Hospital Association.

NEWS OF THE NURSING WORLD

The Committee on Public Health Relations of the New York Academy of Medicine has made certain recommendations to the State Commissioner of Education designed to make more nursing services available. Among the recommendations are that:

1. Legislation reduce from 20 to 18 the age at which women may enter upon nursing duties.
2. Nurses not licensed in the state be permitted to serve in hospitals under supervision in the same way that interns serve before being licensed.
3. Practical nurse training be continued and practical nurse training schools be developed.
4. Not all nurse training candidates be required to have completed a high school education.
5. Nurse training be reduced to two years, with the third year an internship on a salary basis.

At about the same time the Department of Defense announced provisions for more economical use of registered nurses in the Armed Forces to eliminate needless drain of nurses from the civilian economy. A nine point policy provides for relieving nurses of all but professional duties by the training and use of practical nurses and auxiliary personnel; for concentrating both patients who need professional nursing care and the nurses who give them such care in "active" wards; for discontinuing the training and use of nurses as dietitians, physical therapists, and occupational therapists; and for nurse participation in the planning and design of military hospitals.

Another recent event is also related. President Alvin C. Eurich of State University of New York has appointed a committee on nursing education representing a wide cross-section of groups interested in nursing education and services. This committee will make to the trustees recommendations for action in meeting the state's need for nurses. The chairman of the committee, of some 35 persons, is Lucile Petry, R.N., chief, Division of Nursing, U. S. Public Health Service. Its executive secretary is Julia Groscop, R.N., formerly secretary of the Health Division, Philadelphia Council of Social Agencies.

Still another aspect of the nursing world is under survey jointly by the Commission on Chronic Illness and the National Organization for Public Health Nursing. This is a study of chronic illness activities of public health nursing organizations being made by questionnaire to a nation-wide sample of 800 nursing organizations, both official and nonofficial. Findings will be presented in an overall report of the Commission on resources, facilities, and services for the chronically ill.

STREAM POLLUTION CONTROL SERIES

A series of 15 river basin summary reports, to be followed at a later date by detailed reports, will be published by the U. S. Public Health Service in a "Water Pollution Control Series." The first in this series is *Water Pollution in the United States,* a nontechnical report in three parts presenting the general background and a graphic analysis of the problem, and the cost of and responsibility for its solution. It summarizes conditions in the 15 major drainage basin areas of the country and finds a need for 10,000 new waste treatment plants, replacements, additions, or enlargements at an estimated cost of $9 to $12 billion

Second in the series is *Tennessee River Drainage Basin.* This report is particularly valuable for community leaders as source material on local and regional problems. Its distribution is restricted to officers of organizations.

Other Public Health Service publications on different aspects of the water pollution control program include:

Water Pollution Control—Excerpts from: A Water Policy for the American People, P.H.S. Publication No. 58, a nontechnical booklet consisting of reprints of Chapter 13, "Pollution Control"; Chapter 12, "Domestic and Industrial Water Supply"; and excerpts from other chapters of Volume I of the 1950 report of the President's Water Resources Policy Commission. (*A.J.P.H.* 41, 5:587 (May), 1951.)

Clean Water Is Everybody's Business (*A.J.P.H.* 41, 6:728 (June), 1951.)

Suggested State Water Pollution Control Act and Explanatory Statement (*A.J.P.H.* 41, 3:349 (Mar.), 1951).

Division of Water Pollution Control, U. S. Public Health Service, Washington 25, D. C.

ACTION FOLLOWS CONFERENCE ON AGING

Aging is the Federal Security Agency's attempt to meet frequent demands "for the creation of a clearing house of information about work in the new and pressing field" of aging. Its first experimental number was issued in June, 1951. Currently, it is not planned for a regular schedule but from time to time. The first issue describes the five year program of the Delaware, Montgomery, and Philadelphia Counties Health and Welfare Council's Division of the Aged, and of New York's Joint Legislative Committee on Problems of the Aging, as well as thumbnail reports of various pertinent happenings round the world. Clark Tibbitts is chairman of F.S.A.'s Committee on Aging and Geriatrics. To him should be sent material for possible use in the new publication.* Federal Security Agency, Washington 25. D. C.

A NATIONAL PLUMBING CODE

The "Report of the Coordinating Committee for a National Plumbing Code," prepared by a committee composed of members from eight different national organizations and several branches of the federal government interested in the enforcement or other use of plumbing codes is now available. The committee preparing the report was sponsored by the American Public Health Association, the American Society of Mechanical Engineers, the U. S. Department of Commerce, and the Housing and Home Finance Agency. It is now being circulated for comment to national organizations before consideration by the American Standards Association as a revision of the current American Standard Plumbing Code. Copies available from the Supt. of Documents, Washington, D. C., 50¢. Comments on it as a revision of the American Standard Plumbing Code should be sent to Mrs. D. M. Shackelford, American Society of Mechanical Engineers, 29 West 39th Street, New York, N. Y.

NEW CLINIC FOR SANTO DOMINGO

The Dominican Republic is this fall opening a modern clinic and laboratory on tropical diseases, that will operate as a branch of the Institute of Tropical Medicine of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C. Its director, Thomas T. Mackie, M.D., one of the foremost experts on tropical diseases in the United States, has for the past year made frequent visits to the Republic to establish the clinic, completing preparations in August.

The clinic is on the plantation of the Boca Chica Sugar Company, 25 miles east of Ciudad Trujillo, the capital of the country. One-half of the estimated expenses of the operation, from $50,000 to $75,000 a year, will be borne by Boca Chica's parent company, the West Indies Sugar Corporation, an American concern; the other half by Eli Lilly & Company, Parke-Davis & Company, Hoffmann La Roche, Inc., and G. D. Searle & Company. The Dominican Health Department will give extensive coöperation and will benefit by receiving results of experimentation and research

among 50,000 sugar plantation employees.

Arrangements have also been made for coöperation by the North Carolina School of Public Health, and the Universities of Pennsylvania, Harvard, Tulane, Temple, and Cornell, which will send technicians from their staffs to the clinic to observe results and receive technical information on the causes and treatment of tropical diseases, especially malaria and dysentery.

1951 PUBLIC HEALTH NURSE CENSUS

The 1951 survey of public health nurses employed in the United States has just been published by the U. S. Public Health Service. The number has increased by less than 2 per cent over 1950. The previous year had registered an increase of 7 per cent.

These annual summaries have now been made for 15 years. Between the first census in 1937 and the present one, the reported number of employed public health nurses has increased more than 40 per cent; in the last 5 year period, it has been nearly 25 per cent.

A new table in the 1951 analysis lists by F.S.A. regions the states with the percentage of counties having nurses engaged in full-time public health work in rural areas. In six states there are such nurses in fewer than half of the counties. Also included are detailed analyses of the public health qualifications of the various grades of nurses employed. Division of Public Health Nursing, U. S. Public Health Service, Washington 25, D. C.

USE OF PAPER CUPS IN HOSPITALS

Where in the hospital routine paper cups and containers are used was the subject of a recent research study conducted in 100 hospitals—37 by visit and 63 by mail questionnaire. Made by the Field Research Division of the Paper Cup and Container Institute, the survey shows that 22 hospitals use paper in more ways than before the war, and 20 use a greater volume over the same period. Medicine cups and hot and cold food containers were used in 15 hospitals; cold drink cups in 19. In 17 hospitals special diets are served directly to patients in paper containers—6 assuring correct delivery with the patient's name on the container lid. Write to 551 Fifth Ave., New York 17, for the complete report.

REHABILITATORS MEET IN LOS ANGELES

The National Rehabilitation Association will hold its annual meeting at the Ambassador Hotel in Los Angeles, October 21–25, just prior to the 79th Annual Meeting of the American Public Health Association. The Southern California Chapter is serving as host and the report is that "an outstanding conference is being prepared."

DIRECTORY OF VENEREAL DISEASE CLINICS

The Public Health Service through its Division of Venereal Disease, has recently completed a *Directory of Venereal Disease Clinics* in the United States, Alaska, Hawaii, and Puerto Rico. It lists nearly 2,300 such clinics as of November, 1950, with North Carolina's 222 topping the list. No other state had as many as 200, while 7 states had more than 100. In addition to the listing of clinics, the *Directory* summarizes both the premarital and prenatal laws of the various states; 42 states, Alaska, and Hawaii have prenatal laws requiring blood tests; 41 states, Alaska, and Hawaii have prenatal laws requiring blood tests and physical examinations for venereal disease. U. S. Govt. Ptg. Office, Washington, D. C., 65¢.

STATE AND REGIONAL LIFE TABLES

The Statistical Bureau of the Metropolitan Life Insurance Company has prepared life tables for the white population of the individual states and the geographic sections of the country for

the period 1939–1941. A limited number, published by the National Office of Vital Statistics, are available for distribution. *Statistical Bulletin*, Metropolitan Life Insurance Company, 1 Madison Avenue, New York 10.

PERSONALS

RAYMOND DELACY ADAMS, M.D., has been appointed associate clinical professor of neurology at Harvard Medical School and chief of the Neurological Service at the Massachusetts General Hospital, succeeding CHARLES SOUCEK KUBIK, M.D., now lecturer on neuropathology.

ELMER ALPERT, M.D.,† formerly in private practice in New York City, has joined the staff of the Medical Division of Merck & Co., Inc., manufacturing chemists, as manager of the Clinical Research Department.

G. R. M. APSEY, M.D., for a number of years a member of the Indian Medical Service working in India and Burma in both military and civil posts, has been appointed health officer of the Weyburn-Estevan region, Saskatchewan, Canada.

S. J. AXELROD, M.D., M.P.H.,* has been appointed associate professor of public health of the University of Michigan School of Public Health and associate director of the Bureau of Public Health Economics.

LOUISE BAKER, formerly assistant to the director of the Fels Research Institute, Antioch College, Yellow Springs, Ohio, and author, lecturer, and research writer, as well as an amputee, has been appointed director of public relations for the National Society for Crippled Children and Adults, Chicago.

HELEN J. BAKHTIAR, most recently supervisor of student health service, University of California, Los Angeles, has joined RUTH JOHNSON, R.N., another U. S. Public Health Service officer, who is chief nurse adviser to the Point 4 Health Mission in Iran.

HERBERT BATSON, Ph.D.,† has been appointed professor of biostatistics, University of Illinois, Chicago.

HENRY O. BELL has been appointed sanitarian, Dairy Products Division, Arkansas State Health Department.

HILDA M. BOERHAVE, R.N., director of nursing education, State College of Washington, has been awarded the 1951 Mary M. Roberts Fellowship of the American Journal of Nursing; established in 1950 to assist qualified nurses in acquiring writing skills for the purpose of interpreting nursing to nurses, potential nurses, and the general public.

CHARLES R. BOWMAN, sanitary engineer, Public Health Service, Region 9, Denver, Colo., has gone to Saigon, Indo-China, as sanitary engineer in the Public Health Division, ECA Mission to Indo-China.

FRANKLIN K. BROUGH, M.P.H.,† a recent graduate of the Minnesota School of Public Health, has been appointed director of public health education with the Wichita-Sedgwick County Department of Public Health, Kans., to succeed LEWIS W. ANDREWS,* now executive secretary of the Kansas City (Mo.) Health Council.

WILLIAM J. BROWN, M.D.,† formerly medical officer in charge of the Mid-South Medical Center at Birmingham, Ala., is the new director of the Division of Venereal Disease Control, Arkansas State Health Department, succeeding EDGAR EASLEY, M.D., who has become the director of local health services.

ROBIN C. BUERKI, M.D.,† vice-president in charge of medical affairs at the University of Pennsylvania and vice-president of the National Health Council, has been made executive director of the Henry Ford Hospital in Detroit.

THERON H. BUTTERWORTH, Ph.D.,* U. S. Public Health Service, Washington, D. C., is on a 2 year assignment as health educator in the Education of the Public Section of WHO, with headquarters in Geneva, Switzerland.

EDWARD U. CONDON, Ph.D., director of the National Bureau of Standards and scientific adviser to the Special Committee on Atomic Energy of the U. S. Senate, has been made director of research and development of the Corning Glass Works, Corning, N. Y.

MARGARET CREE,† nursing consultant in school health, Bureau of Maternal and Child Health, California State Department of Public Health, has resigned to become director of school nurses, Fresno City Schools, and nursing consultant, Fresno County Schools.

GILBERT DALLDORF, M.D.,* director of the New York State Health Department's Division of Laboratories and Research, has received the Harold J. Fisher Memorial Award of the *Civil Service Leader* for discovery of a virus which produces a disease similar to poliomyelitis. The award is a plaque given "for exceptional civil service achievement."

CHARLES S. DAVIDSON, M.D., associate director

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* Fellow.
† Member.

of the Thorndike Memorial Laboratory in Boston, has been appointed chief of the clinical investigations branch in the new National Institute of Arthritis and Metabolic Disease.

M. K. DEHNEL, M.D., has been appointed health officer of Assiniboia-Gravelbourg region, Saskatchewan, Canada. He recently completed the D.P.H. course at the University of Toronto, after serving with the armed forces in England, initially with the Polish Army Medical Corps under British Command.

MARGARET DENHAM, R.N.,† Kansas City regional public health nurse consultant of the Public Health Service since 1945, is in Indo-China as chief nurse adviser to the Ministry of Health on nursing matters to assist in the development of public health nursing, particularly in the rural areas. En route to her new post she stopped in Geneva for conferences at the World Health Organization. Working with her is HELEN ROBERTS, R.N., since 1949 detailed to the Maryland State Tuberculosis Hospital in Mt. Wilson as acting director of nurses.

WILLIAM A. DOUBLEDAY, senior sanitary engineering aid, Massachusetts Division of Sanitary Engineering, has recently joined the Northeastern District Health office staff with headquarters in Wakefield.

COL. THOMAS G. FAISON † recently received the Bronze Star Medal in a ceremony held at Fitzsimons Army Hospital in Denver, Colo., for outstanding service as chief of preventive medicine with the Japan Logistical Command.

NICHOLAS J. FIUMARA, M.D.,* director of the Division of Venereal Diseases, Massachusetts Department of Public Health, was one of four Massachusetts civilians who recently received certificate awards for four years of service with the Armed Forces Disciplinary Control Board, made up of officer representatives of the Navy, Army, Air Force and Coast Guard, assisted by their civilian advisers.

WESLEY E. GILBERTSON, M.S.P.H.,* executive officer of the Public Health Service's Communicable Disease Center at Atlanta, Ga., has been designated chief of the Service's Division of Civilian Health Requirements.

LEONARD J. GOLDWATER, M.D.,* professor of industrial hygiene, Columbia University School of Public Health, has been appointed a member of the WHO expert advisory panel on social and occupational health.

EVELYN HANNON,† formerly dental hygienist and assistant to the director of the Dental Hygiene Division, Kansas State Board of Health, is now assistant professor and head of the Department of Dental Hygiene at the University of Oregon Dental School, Portland.

REENA ROBERTS HASKER, author of the *Cook Book for Low Sodium Diet* has been named nutrition consultant to the Massachusetts Heart Association.

JOHN M. HENDERSON,* professor of sanitary science, Columbia School of Public Health, New York City, has returned from sabbatical leave. In July, Professor Henderson served as a member of a 4-man group retained by the Ministry of Health of Venezuela through the Rockefeller Foundation to make recommendations on the Venezuelan health program.

HELEN HESTAD, R.N.,† former public health nursing director, Dubuque, Iowa, has become director of the Indianapolis Visiting Nurse Association.

DON D. HOFFMAN, with the Pennsylvania Salt Manufacturing Company since 1939 and assistant manager of sales since 1946, has been appointed field sales manager of the Company's Specialties Sales Division.

OSCAR L. HONOMICHLE has been made sanitarian of Washington and Madison Counties, (Ark.), with headquarters at Fayetteville.

J. F. HOOKER, M.D.,† recently released from the U. S. Navy after 34 years of continuous service, is now medical director of the Southeast Health Region, Georgia Department of Public Health, with headquarters in Waycross.

PORTIA BELL HUME, M.D., director of the Berkeley State Mental Hygiene Clinic and assistant professor of psychiatry at the University of California Medical School, has been appointed a deputy director of the State Department of Mental Hygiene.

JOHN HOWARD JOHNSTON, M.D., formerly with the American Cyanamide Atomic Energy Division, Oak Ridge, Tenn., has been appointed director of the Bureau of Industrial Hygiene, Connecticut State Department of Health.

HARRY C. KELLY, Ph.D., recently head of the Scientific Section of the Office of Naval Research Branch in Chicago, has been appointed assistant director for the Division of Scientific Personnel and Education, National Science Foundation, Washington, D. C.

JAMES J. KERRIGAN, president, and JAMES M. CARLISLE, M.D.,* medical director of Merck & Co., Inc., manufacturing chemists, have been awarded honorary degrees of Doctor of Laws in Dublin by the National University of Ireland.

WARREN A. KETTERER, M.D., health officer, Contra Costa County Health Department

(Calif.), left for Djakarto, Indonesia, in July to serve with the Special Technical and Economic Mission (STEM) to Indonesia.

F. W. KITTRELL,* chief of the Stream Sanitation Section, Tennessee Valley Authority, has resigned to become sanitary engineer in the Isotopes Division of the Atomic Energy Commission, with headquarters in Knoxville, Tenn.

RALPH E. KNUTTI, M.D., associate professor, University of Southern California School of Medicine, has been appointed chief of the Extramural Programs Branch in the new National Institute of Arthritis and Metabolic Disease.

H. WALLACE LANE, M.D.,† after a year of postgraduate work at Johns Hopkins University, where he received his master's degree in public health, has returned to the position from which he had educational leave, director of the Butler-Greenwood County Health Department, Kans.

JOHN L. LAVAN, M.D., Dr.P.H.,* former district health officer, New York City Department of Health, has succeeded BERNARD KRUG, M.D.,† as health officer of Milford, Conn.

RAYMOND C. LEER, M.D.,† formerly chief, Communicable Disease Control, Orange County (Calif.) Health Department and for the past year on educational leave at the University of California, has been appointed health officer of Santa Cruz County, succeeding R. O. INGHAM, M.D.,* who resigned to enter private practice in Santa Cruz.

GORDON E. MCCALLUM,* Sanitary Engineer Director in the Public Health Service, has been appointed chief of health emergency planning for the Service. He succeeds ROBERT H. FLINN, M.D.,* who has been assigned to the Federal Civil Defense Administration.

JOHN C. MCGUIRE, M.D.,† formerly health officer of DeSoto County, Fla., is the health commissioner for Georgia's newly organized local district health department composed of Gwinett and Barrow Counties, with headquarters in Lawrenceville.

PETER G. MEEK,† assistant to the director, has been appointed acting director of the Commission on Chronic Illness, Chicago, pending the appointment of a medical director.

KENNETH R. MILLER has resigned as executive director of the Indiana Society for Crippled Children to become executive director of the Greater Cincinnati Safety Council of the National Safety Council. He has been succeeded by NELSON H. PARKER, executive vice-president of the Indiana Junior Chamber of Commerce.

MARY MILLS, R.N.,† who has been chief nurse with the U. S. Public Health Service Mission in Liberia since 1946, is back in the United States for 2 years graduate study at New York University.

JOHN R. MOTE, M.D., research scientist responsible for some of the clinical development of ACTH and formerly medical director and assistant general manager of Armour Laboratories in Chicago, has been made medical director of the Research and Development Laboratories of Smith, Kline & French Laboratories, Philadelphia.

RAYMOND G. NEBELUNG, Dr.P.H.,* for the past 2 years clinical instructor in public health and preventive medicine at Stanford University School of Medicine, has been appointed service director of the American Cancer Society.

CHARLES LANE NEWBERRY, M.D.,† for the past 5 years in the Office of Vocational Rehabilitation, has been appointed special assistant to the chief of the Division of Industrial Hygiene, Public Health Service, with responsibility for developing rehabilitative and health services in industry.

SAMUEL C. NEWMAN, Ph.D.,† chief of the Marriage and Divorce Analysis Branch, National Office of Vital Statistics, U. S. Public Health Service, has resigned to join the faculty of the Department of Sociology, University of Akron, Ohio.

MYRON M. NICHOLS, M.D., pediatrics consultant in the Division of Maternal and Child Health, Arkansas Department of Health, has resigned to become instructor in the Department of Pediatrics, University of Virginia Medical School.

ADELE NORTHROP, R.N., pioneer public health nurse, has resigned after serving the people of Minnesota for 23 years, the last 15 years among the Chippewa Indians on the White Earth reservation. She has been succeeded by MARY STOLZE, R.N.

HELEN GER OLSON † is dietary consultant of the Kansas State Board of Health, working through the Division of Maternal and Child Health to set up a new program in nutrition service. She is the first staff member of the Children's Home Licensing Unit, being developed in the Division.

JESSIE PARKINSON, M.D., M.P.H.,† formerly a medical adviser with the Connecticut State Department of Education, is now a child hygiene physician, State Department of Health, Bureau of Maternal and Child Hygiene, succeeding LAURENCE RAINSFORD, M.D.,† epidemiologist, now with the Massachusetts State Department of Health.

W. EARL PROSSER, since 1948 executive director

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* Fellow.
† Member.

of the Ohio Citizens' Council for Health and Welfare, has been appointed executive vice-president of the American Hearing Society, with headquarters in Washington, D. C. He succeeds the late HARRY P. WAREHAM.

SOPHIE RABINOFF, M.D.,* connected with the Department of Health of New York City since 1934, and since 1947 associate professor of public health, New York Medical College, Flower and Fifth Avenue Hospitals, has been appointed professor and director of the Department of Public Health and Industrial Medicine.

PHILIP G. RETTIG,† formerly director of research and legislation, National Society for Crippled Children and Adults, has resigned to become executive director of the Research Foundation, Chicago, a private nonprofit organization formed to produce and distribute in this country the vaccine BCG.

KENNETH C. ROSS,† health education consultant, Oregon Tuberculosis and Health Association, and former member of the Personnel and Training Service, National Tuberculosis Association, has succeeded SAIDIE ORR DUNBAR,* who retired after 36 years as executive secretary of the Oregon Association.

MARGARET TAYLOR ROSS, M.D. at the Brigham Hall Hospital of Canandaigua, N. Y., since 1940 as physician-in-charge, is the new executive secretary of the New York State Charities Aid Association Committee on Mental Health.

JOSEPH F. RUDMIN, M.D.,† who recently graduated with the degree of Master of Public Health from the Johns Hopkins University School of Hygiene and Public Health, has been appointed commissioner of health for Cortland County, N. Y. He succeeds WILLIAM E. MOSHER, M.D.,* now deputy health commissioner of Buffalo-Erie County (N.Y.).

NATHAN SINAI, Dr.P.H.,* professor of public health and director, Bureau of Public Health Economics, School of Public Health, University of Michigan, has been granted a 6 month leave of absence to analyze and evaluate for WHO its programs in Europe, the Eastern Mediterranean, Southeast Asia, and the Western Pacific.

G. L. SMITH has resigned as Claremont County, Ohio, sanitarian to accept a similar position with the Hamilton County Health Department.

GENEVIEVE STOUT,† for the past 3 years in Guatemala for the Pan American Sanitary Bureau and WHO, has been appointed serologist in charge of the Advisory and Consultative Unit, Venereal Disease Research Laboratory, of the Public Health Service at Chamblee, Ga.

JACK L. STROMINGER, M.D., assistant surgeon, School of Medicine, Washington University, St. Louis, has gone to Bangkok, Thailand, to serve with the ECA Mission as visiting professor of pharmacology and biochemistry at Siriraj Hospital and Medical College and to Chulalongkorn University in Bangkok.

GEORGE E. SYMONS, Ph.D.,* managing editor of *Water & Sewage Works*, New York City, has resigned to devote his energies to the establishment of an independent consulting service in Larchmont, N. Y.

MARGARET S. TAYLOR, R.N.,* director of the course in Public Health Nursing, Minnesota School of Public Health, spent the summer on a WHO Fellowship visiting Public Health Nursing programs in Brazil, Chile, and Colombia.

H. R. WAGENBLAST, M.D., formerly assistant director of the Wichita-Sedgwick County Health Department, is the new director of the Lawrence-Douglas County Health Department, succeeding J. M. MOTT, M.D.,* who for the past 5 years headed the unit in a part-time capacity.

NAIDA WALTHALL, R.N., formerly public health nurse, Alameda County Health Department, is now public health nurse in the Bureau of Acute Communicable Diseases, California State Department of Public Health.

EDWARD WALTON, formerly assistant managing director of the Brooklyn Tuberculosis and Health Association, is now executive secretary of the Colorado State Tuberculosis Association.

FREDERICK J. WAMPLER, M.D.,* chief of field party, Division of Health and Sanitation, Paraguay, received in absentia the honorary LL.D. degree from Bridgewater College, Virginia, in June, 1951.

SIDNEY I. WOLFSON, M.S.P.H.,† formerly executive assistant, Montgomery County (Md.) Health Department, is health program administrative consultant in the regional office of the Children's Bureau, Denver, Colo.

DEATHS

ADDISON D. ALDRICH, M.D.,† of Houghton, Mich., on April 21 (Health Officers Section).

BEATRICE H. ALLISON,† chief laboratory technician, Niagara Sanatorium, Lockport, N. Y., on August 4 (Laboratory Section).

B. S. BOOKSTAVER, M.D.,† health officer of Teaneck, N. J. (Health Officers Section).

MARTIN DUPRAY, M.S.,* chief medical technologist, the Dupray Laboratory, Hutchinson, Kans. and a charter Fellow of the A.P.H.A. (Laboratory Section).

THOMAS C. FERGUSON, Ed.D.,† supervisor of

physical education and recreation, Baltimore State Department of Health, on March 16 (School Health Section).

HELEN FISHER,† director of nurses, division of Public Health Nursing, Portland (Ore.) Department of Health, on February 11 (Public Health Nursing Section).

KATHARINE M. HOWELL, M.D.,† of Chicago, Ill., on April 27 (Laboratory Section).

DONALD W. HUFFERD, structural engineer of the Division of Sanitary Engineering, Indiana State Board of Health, on June 6, at the age of 65.

KNUD KNUD-HANSEN, M.D., physician to the Virgin Islands, formerly chief municipal physician, St. Thomas and St. John, and Commissioner of Health, at the age of 77.

HECTOR CLIVE MCALISTER, M.D.,† associate medical director, Lincoln National Life Insurance Company, Fort Wayne, Ind. (Statistics Section).

S. C. MOORE, M.D.,† of Wexford County (Mich.) Health Unit, on March (Health Officers Section).

JOSEPHINE OSTERHOUDT, M.S.,† instructor in bacteriology and immunology, Loyola University, Stritch School of Medicine, Chicago (Laboratory Section).

JOHN B. PASTORE, M.D.,† since 1946 executive director of the Hospital Council of Greater New York and before that, assistant superintendent of New York Hospital, on August 18, at the age of 48 (Medical Care Section).

J. ARMAND PATENAUDE, M.D.,† health officer, Sanitary Unit, Valleyfield, P.Q., Canada, on May 29 (Health Officers Section).

MANUEL A. PEREZ,† director of personnel, Government of Puerto Rico, San Juan, on May 7 (Statistics Section).

LEWIS RADCLIFFE, Sc.D.,* director, Oyster Institute of North America, Washington, D. C., on September 2, 1950 (Food and Nutrition Section).

ADA E. SCHWEITZER, M.D.,† child health worker with the Indiana State Board of Health for 30 years and associated with the U. S. Children's Bureau from 1933 to 1939, on July 2, at the age of 78 (Maternal and Child Health Section).

RAY E. SMITH,† executive secretary, Indiana State Medical Association, suddenly on August 4 of a heart attack (Medical Care Section).

E. G. STILLMAN, M.D.,* associated with Cornwall Hospital, Cornwall, N. Y., December, 1949 (Laboratory Section).

S. C. TATUM, M.D.,† Cherokee County health officer, in an automobile accident on October 21, 1950 (Health Officers Section).

PROFESSOR EARLE WATERMAN,† head of the Civil Engineering Department from 1944–1949 and a member of the State University of Iowa faculty since 1922, on July 30, at the age of 65, following a long illness (Engineering Section).

* Fellow.
† Member.

CONFERENCES AND DATES

American Public Health Association. Headquarters, Civic Auditorium, San Francisco, Calif. Oct. 29–Nov. 2.

Western Branch (18th Annual Meeting) with the A.P.H.A. Civic Auditorium, San Francisco, Calif. Oct. 29–Nov. 2.

Coming in October, November, and December:

Academy of Political Science. Hotel Astor, New York, N. Y. Nov. 7.

American Association for the Advancement of Science. Convention Hall, Philadelphia, Pa. Dec. 26–31.

American Dietetic Association. Cleveland, Ohio. Oct. 9–12.

American Economic Association. Statler Hotel, Boston, Mass. Dec. 27–29.

American Municipal Association. Hotel Statler, Washington, D. C. Dec. 10–12.

American Public Welfare Association. Hotel Statler, Washington, D. C. Nov. 29–Dec. 1.

American Statistical Association. Copley Plaza Hotel, Boston, Mass. Dec. 26–28.

American Water Works Association:
- California Section. Fairmont Hotel, San Francisco. Oct. 23–26.
- Chesapeake Section. Sheraton-Belvedere Hotel, Baltimore, Md. Oct. 31–Nov. 2.
- Florida Section. Park Sheraton Hotel, Daytona Beach. Oct. 28–31.
- Iowa Section. Hotel Julian, Dubuque. Oct. 25–27.
- New Jersey Section. Madison Hotel, Atlantic City. Oct. 25–27.
- North Carolina Section. Robert E. Lee Hotel, Winston-Salem. Nov. 12–14.
- Southwest Section. Hotel Texas, Fort Worth, Tex. Oct. 14–17.
- Virginia Section. Hotel Roanoke, Roanoke. Nov. 7–9.
- West Virginia Section. Daniel Boone Hotel, Charleston. Oct. 4–5.

Association of American Medical Colleges. French Lick Springs Hotel, French Lick, Ind. Oct. 29–31.

Federation of Sewage and Industrial Wastes Association. St. Paul, Minn. Oct. 8–11.

Florida Public Health Association. Casablanca Hotel, Miami Beach. Oct. 4–6.

Florida Sewage and Industrial Wastes Association, jointly with Florida Section of American Water Works Association. Princess Issena Hotel, Daytona Beach, Fla. Oct. 28–31.

Industrial Hygiene Foundation. Mellon Institute, Pittsburgh, Pa. Nov. 14–15.

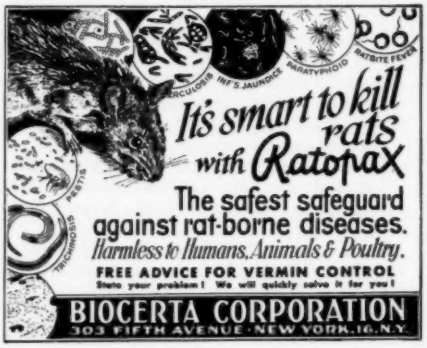
National Association for Mental Health. Stevens Hotel, Chicago, Ill. Nov. 29–Dec. 1.

National Association of Housing Officials. Hotel Statler, Washington, D. C. Oct. 9–12.

National Council of Local Public Welfare Administrators. Hotel Statler, Washington, D. C. Nov. 29–Dec. 1.

National Council of State Public Assistance and Welfare Administrators. Hotel Statler, Washington, D. C. Nov. 29.

National Recreation Congress. Hotel Statler, Boston, Mass. Oct. 1–5.
National Rehabilitation Association. Ambassador Hotel, Los Angeles, Calif. Oct. 21–25.
National Safety Congress and Exposition. Stevens Hotel, Chicago, Ill. Oct. 8–12.
National Social Welfare Assembly. New York, N. Y. Dec. 3–4.
National Society for Crippled Children and Adults, Inc. Palmer House, Chicago, Ill. Oct. 3–6.
Nebraska Public Health Association. Clark Hotel, Hastings. Nov. 5–6.
North Dakota Public Health Association. Bismarck. Oct. 1–2.
Oklahoma Public Health Association. Student Union Building, Oklahoma A & M College, Stillwater. Nov. 15–17.
Physicians and Schools, Third National Conference. Moraine-on-the-Lake Hotel, Highland Park, Ill. Nov. 6–8.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